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THE JOURNAL OF THE



BOTANICAL SOCIETY OF SOUTH AFRICA

Edited by H. B. RYCROFT, M.Sc.,
B.Sc.(FOR.), PH.D., Director of the National
Botanic Gardens, Harold Pearson Professor of
Botany in the University of Cape Town

Parts XLI/XLII

1955/6



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NEWLANDS, C.P.
SOUTH AFRICA.

Published under the authority of the Council of the Botanical Society

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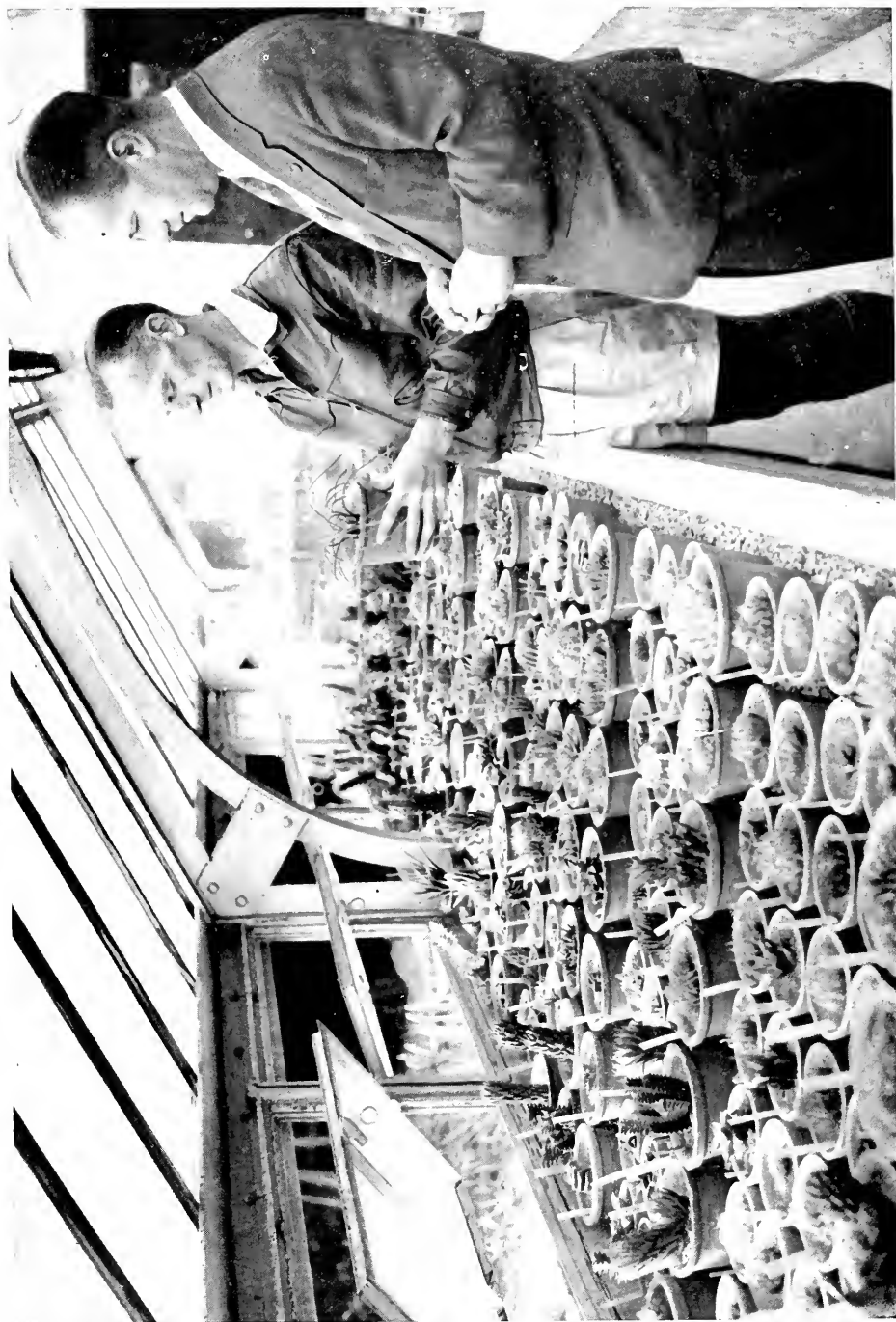
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Photograph by courtesy of Cape Times, Ltd.

PLATE 1. G. G. Smith Haworthia Collection.

Mr. H. Hall (*left*), Senior Horticulturist in charge of Succulents at Kirstenbosch, and Professor H. B. Rycroft, Director of the National Botanic Gardens of South Africa, examine a small portion of the magnificent collection of Haworthias which was presented to Kirstenbosch by Mr. G. G. Smith of East London (see News and Notes).

The Journal of the Botanical Society of South Africa

EDITED BY H. B. RYCROFT

PARTS XLI/XLII

1955/6

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News and Notes

NEW GARDENS FOR THE CULTIVATION AND PROTECTION OF WILD FLOWERS

For the adequate protection of our wild flowers it is desirable that they should be grown in areas which provide the right conditions for their growth. Tremendous success has been achieved at Kirstenbosch and at the Karoo Garden at Worcester where about a quarter of South Africa's 16,000 species of flowering plants are already under cultivation. Some species, however, require different conditions, and for their successful propagation and protection Regional Botanic Gardens should be established in various parts of the country to cater for the species in their respective areas.

These thoughts were expressed in the last issue of the Journal and since then offers of two areas of land have been made to Kirstenbosch.

Darling Flora Reserve

Through the generosity of Mr. Tienie Versfeld a portion of his farm 'Slangkop' in the Darling area is being ceded to the National Botanic Gardens. This new Flora Reserve is situated in an area which once boasted an abundance of beautiful wild flowers which to-day have all but vanished except on the small portions of some farms which have been set aside for the protection of local flora. Many of these species are by nature very restricted in their distribution, but now by the acquisition of this reserve and with the co-operation of the various farmers the plants can be gathered together and concentrated (and protected) in one locality. The grateful thanks of the Botanical Society and the National Botanic Gardens are extended to Mr. Versfeld for his magnificent gesture and for giving the country the opportunity of preserving for all time an element of our flora which is rare, local and beautiful.

Members of the Society and their friends will have an opportunity of visiting this reserve on Saturday, 15 September 1956, at 3 p.m. It is situated about six miles from Darling on the Ysterfontein road.

Cape Flats Flora Reserve

One of our members, Miss Edith L. Stephens, known to many as an authority on the edible and poisonous fungi, is also an expert on the aquatic and other vegetation of the Cape Flats. Over the years she has watched this vegetation disappearing as a result of agriculture, housing and the insidious spread of exotic trees and

shrubs. So worried was she about this state of affairs that she borrowed more than £1,000 to purchase about eight acres of ground on the Cape Flats for Kirstenbosch. She is now happy to know that this land will be in safe hands and that every effort will be made to eliminate the weeds and reintroduce the species which once grew so abundantly on the Cape Flats. Thank you Miss Stephens very much indeed. We do appreciate what you have done and we hope it will not be too long before you see the last of the invading wattles removed from this land.

As a result of this purchase Miss Stephens is out of pocket to the extent of more than £1,000. An earnest appeal is made to all members of the Society for donations to help her pay back this money.

An outing is also being arranged to this Reserve where Miss Stephens will tell us of the hidden wonders of the seasonal vlei which is situated on the land. It will take place at 3 p.m. on Saturday, 27 October 1956. Cars should meet at the Philippi Police Station in Lansdowne Road.

Volunteers help destroy exotic vegetation

Work-parties have been arranged for members of the Society and their friends to cut out the exotic vegetation which has become established on these two Reserves. So far an outing has been arranged to each of the Reserves and volunteers have made excellent progress in removing the exotic vegetation which threatens to smother the local flora.

* * *

RETIREMENT OF OUR PRESIDENT

It is with great regret that the Botanical Society records the resignation from the office of President of Mr. W. Duncan Baxter. Mr. Baxter was elected to the first Council when the Society was founded in 1913 and in 1936 he became President. He held this office with great distinction for twenty years.

It is almost impossible to express adequately the debt that the Society owes to Mr. Baxter. Under his able direction the Botanical Society has become stronger and stronger and its influence has spread far and wide.

Mr. Baxter is also a foundation member of the Board of Trustees of the Gardens and we are very glad to know that he continues to serve as Chairman of that Board. Both the Society and the Gardens have indeed had good

fortune in having Mr. Baxter's interest, devotion, wise counsel and guidance throughout their existence.

Our new President is a man worthy of succeeding Mr. Baxter. He is Mr. Dudley R. D'Ewes, another member of the Board of Trustees of the Gardens, and it is fitting and appropriate that the President of the Society should have a thorough understanding of the affairs of the National Botanic Gardens. Mr. Baxter is very satisfied with the choice of his successor and he, like us, is convinced that the right man has been elected. Congratulations Mr. D'Ewes; we trust that your term of office will be a long and outstanding one, marked by great achievements.

* * *

DR. L. BOLUS

Another foundation member of the Council of the Botanical Society who has resigned is Dr. L. Bolus. Throughout the time Mrs. Bolus was on the Council she did a tremendous amount for the Society, especially with regard to wild-flower protection and education. She was one of the prime movers in persuading the Cape School Board to appoint nature study teachers at Kirstenbosch to give instruction to schoolchildren. Before these teachers were appointed, Mrs. Bolus personally conducted many hundreds of university and training college students and schoolchildren through the Gardens, revealing to them the marvels of the South African flora.

Special mention should also be made of the tremendous efforts of Mrs. Bolus towards the production of the book *Wild Flowers of the Cape of Good Hope*, which was published by the Botanical Society. This book has proved to be very popular and the income from sales already far exceeds expenditure.

The Council of the Botanical Society and the Wild Flowers Protection Committee will miss Mrs. Bolus at their meetings and will find it difficult to replace her.

* * *

COMMITTEE OF ENQUIRY: STATE-AIDED INSTITUTIONS

During 1956 the Hon. the Minister of Education, Arts and Science appointed a committee to inquire into and report upon the financial positions of some of the State-aided Institutions, including the National Botanic Gardens.

The report from Kirstenbosch has been submitted to the Committee of Enquiry and the final outcome is being

awaited very anxiously. During the last fifteen years there has been no increase in the number of staff members because of the lack of funds, with the result that a stranglehold has been placed on the development of the Gardens. If the recommendations made to the Committee of Enquiry are accepted, the Gardens can look forward to better times.

The value and the uniqueness of the National Botanic Gardens of South Africa are recognized by botanists and botanic gardens throughout the world, and as far back as 1922 the National Botanic Gardens Advisory Committee, in its report to the Government, recommended a staff establishment consisting of many more members than are employed to-day.

* * *

ANNUAL REPORT OF THE GARDENS

The 1955 Annual Report has been published and the following is an extract from the Introduction by the Chairman (Mr. Baxter):

'The year 1955 can be looked upon as a very important one due to the reconstitution of the governing body of the Gardens, the Board of Trustees, now that the Gardens have come under the provisions of the State-aided Institutions Act. All the members of the 1954 Board were reappointed except that the Mayor of Cape Town ceased to represent *ex officio* the Municipality of Cape Town which has now a free choice of its member. Additional representation has been given to the Botanical Society of South Africa and representatives of the South African Railways and of the Cape Provincial Administration now serve on the Board.

'I am glad to have the support of the old members, and I extend a hearty welcome to the new ones. I am confident that our term of office will be marked by unity of purpose and that we shall make a real contribution towards the welfare and development of the National Botanic Gardens.

'A major disappointment has been the delay in deciding on the fate of the public road which passes through Kirstenbosch and is not only an obstacle to the proper use and development of the Gardens but increasingly a danger to the public. I appeal to the Government in the national interest to protect what was described in the Report of the Museums Commission in 1950 as "unique, valuable assets, of which the country may well be proud". If the present opportunity of diverting the road is not seized upon, it may be too late.'

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

BOARD OF TRUSTEES, NATIONAL BOTANIC GARDENS OF SOUTH AFRICA

The Board of Trustees was reconstituted in 1955 and the following are the members:

Nominated by the Union Government: Mr. J. G. Carinus; The Hon. J. H. Conradie, Q.C.; Capt. R. J. du Toit, M.P.; Dr. C. A. Lückhoff (Vice-Chairman); Mr. E. H. Nellmapius.

Nominated by the Botanical Society of South Africa: Mr. W. Duncan Baxter (Chairman) (*alternate* Mr. M. Clough); Mr. D. R. D'Ewes (*alternate* Mr. J. S. Linley).

Nominated by the City of Cape Town: Councillor A. S. A. East (*alternate* Councillor John Tyers).

Nominated by the Cape Provincial Administration: Dr. D. Hey.

Nominated by the South African Railways: Mr. S. H. Baker.

* * *

WILD FLOWER SHOW

On 8 October 1955 the Botanical Society held its first Wild Flower Show at Kirstenbosch. All exhibits were grown by members in their own gardens and many were from seed distributed by Kirstenbosch. The Show was an outstanding success and the organizers were so encouraged that not only is it likely to become an annual event but it is planned to stage it for two days in 1956. The dates are 6 and 7 October. Entry forms are included in this Journal. This is your show—help to make it a success.

* * *

CATCHING UP WITH TIME

For many years the Journal has been published during the year following the date printed on the cover. In order to bring it up to date the present volume is for 1955 and 1956. The 1957 volume will appear during the first half of 1957 and not in 1958.

* * *

SPREAD OF EXOTIC VEGETATION

A few exotic species introduced into this country at various times have become so adapted to local conditions that they have been able to compete with and oust the natural vegetation. Their rate of spreading can be quite phenomenal and unless their advance is halted, large tracts of land will be completely dominated by them.

The complete eradication of some of them is an almost impossible task but every effort should be made to prevent the more aggressive species from destroying any more of our flora.

* * *

BOOKLETS ON PROTECTED WILD FLOWERS

Parts I and II of *Protected Wild Flowers of the Cape Province* have been published and we look forward to seeing Part III. These booklets, which have been published by the Cape Provincial Administration, have proved to be very popular and there has been a great demand for them. Large numbers of the plants or flowers figured in the coloured illustrations were supplied from Kirstenbosch. Copies are obtainable from the Provincial Secretary, P.O. Box 659, Cape Town.

* * *

NEW HOME STRUCK BY LIGHTNING

Our sympathies are extended to Professor R. H. Compton (former Director of the National Botanic Gardens and Editor of this Journal) and Mrs. Compton whose home which had only just been completed was struck by lightning and destroyed. Professor and Mrs. Compton are living in Swaziland.

* * *

WORK OF THE GARDENS AND BOTANICAL SOCIETY. APPRECIATION FROM AFAR

Members of the Botanical Society of South Africa are to be found in practically every country of the world and similar societies or would-be societies are conscious of the value of the work done by our own Society. The following extract from a circular of the North Queensland Naturalists' Club supports this view:

"The proposition has been suggested, inside the Club, that we 'Found' a Society for the purpose of starting a 'Botanical Gardens' in Cairns and District, for the sole purpose of cultivation and distribution of North Australian Flora.

'It was debated at our last monthly meeting, and finally resolved, to have the main points of the suggestions printed and distributed amongst the members, to allow careful consideration before another discussion at our next month's Meeting. They are as follows:

1. That consideration be given to the formation of a North Queensland Botanical Society, run on lines similar to the South African Botanical Society for the cultivation, exclusively, of native plants. All

- plants, not of Australian origin, to be rigidly excluded.
2. That subscriptions be invited for membership of such Society, and that Members be entitled to receive, according to size of subscription, plants, seedlings or seeds.
 3. That the proposition be placed on a business basis, with an appropriate panel of management.
 4. Funds are required for—
 - (a) purchase of suitable site and necessary equipment;
 - (b) payment of Staff;
 - (c) various numerous incidentals.'

* * *

GIFT OF UNIQUE COLLECTION OF SUCCULENTS

Mr. G. G. Smith, a member of our Society, is known to many as the Chairman of the East London Museum and a world authority on the interesting genus *Haworthia*. Much of his work has been published in the *Journal of South African Botany* which is issued from Kirstenbosch. The species of *Haworthia* which are related to the *Aloes* are mostly small succulents which assume a great variety of shapes and forms.

Over a large number of years Mr. Smith built up a magnificent living collection of these species—probably the finest and most complete collection in existence. Through the generosity of Mr. Smith this collection is now the proud possession of Kirstenbosch. Not only were the plants given to the Gardens, but also a large shade-house to accommodate them.

The unique assemblage of South African plants at Kirstenbosch has been greatly enriched by the acquisition of the G. G. Smith Collection of *Haworthias*.

A small portion of the collection is shown in the frontispiece.

* * *

THE GARDENS OF ENGLAND AND WALES

The National Trust Gardens Scheme in London annually publishes an illustrated booklet giving details of the 1,000 or more gardens of England and Wales which are open to the public. The booklet is obtainable from the Organizing Secretary, 57, Lower Belgrave Street, London, S.W.1, at 1s. 6d. per copy, plus 4d. for postage.

The object of the National Gardens Scheme is to provide annuities and to give assistance to district nurses and midwives who in retirement receive little or no benefit from any superannuation scheme.

The Gardens, by courtesy of the owners, can be yours to enjoy for a day or an afternoon, on payment of an admission charge, usually 1s. 6d., and at the same time you would be contributing to a worthy cause.

* * *

J. W. MATHEWS CUP

A sixty-guinea silver trophy has been presented to the Gardens by one who wishes to remain anonymous. It is to be known as the 'J. W. Mathews Cup' in honour of the first Curator of Kirstenbosch, who faithfully served the Gardens from 1913 until his retirement in 1936. This floating trophy will be competed for by school-children and the subject of the competition will be changed each year.

It might be an essay competition one year, a poster competition the next, and so on. The subject in each case would be closely related to the aims of Kirstenbosch and the Botanical Society. In this way it is hoped to encourage in the younger generation a deeper appreciation of our natural flora.

* * *

EXEMPTION FROM DONATIONS TAX

In terms of the Income Tax Act, 1955, a person may be required to pay as much as 25 per cent on donations. The Hon. the Minister of Finance, however, has exempted from the Donations Tax all donations made to or by the National Botanic Gardens and the Botanical Society of South Africa. Those, therefore, who wish to avoid tax payment on donations can do so if they make donations to the Gardens or to the Society.

* * *

FLORA OF SOUTHERN AFRICA

The only standard work on the flora of South Africa is the *Flora Capensis* which was prepared at the Royal Botanic Gardens, Kew, and published at intervals during the period 1859 to 1925. Most of it is now much out of date and very incomplete. The Hon. the Minister of Agriculture has now approved in principle that a 'Flora of Southern Africa' should be prepared. The Editor will be the Chief of the Division of Botany, Dr. R. A. Dyer.

* * *

PARKING FEE AT KIRSTENBOSCH

Members of the public have on many occasions said that they had enjoyed their visit to Kirstenbosch so much that they would willingly pay for the pleasure they had

received. As is well known, the adequate development and maintenance of the Gardens depends on the availability of funds. Without funds the Gardens cannot prosper. It is probable therefore that a parking fee of possibly 1s. will be levied on each car entering the grounds. Members of the Society would be exempt from such payment on production of membership cards.

* * *

ANOTHER BOOK BY UNA VAN DER SPUY

Notices on gardening books by Una van der Spuy were given in the last two issues of this Journal and now we announce the publication of her third book *Garden Planning and Construction*. It is a companion volume to *Ornamental Shrubs and Trees* and *Gardening in Southern Africa*, and the owner of the first two should certainly see that the third is also on his bookshelf. The book is simply written and where possible technical terms have been avoided, which makes it easy reading for all. Nothing seems to have been left out—cement-mixing, brick-laying, wall construction, bridge-building have all been included in addition to what one would expect to find.

There are 6 colour plates, 32 pages of half-tone plates, 40 full-page garden plans, and more than 140 text-figures. The price is 27s. 6d. and the book is obtainable from Juta & Co., Ltd., and all booksellers.

* * *

A BOOK ON SOUTH AFRICAN WILD FLOWERS

Sima Eliovson has followed up her *Flowering Shrubs and Trees for South African Gardens* by *South African Flowers for the Garden*. It should appeal particularly to members of the Botanical Society of South Africa as it deals exclusively with our wild flowers, the seeds of many of which are obtainable from Kirstenbosch. The volume is beautifully produced and would occupy a place of honour on any bookshelf. It is profusely illustrated with 407 colour and black-and-white photographs.

Chapters are given on the cultivation of different types of South African plants, the selection of plants for special purposes and for different conditions but the bulk of the book is devoted to the description, uses and cultural requirements of the individual species. It is therefore a most valuable handbook of South African wild flowers (including trees, shrubs and succulents) which are or can be cultivated.

There has been a steady awakening of interest during the last few years in our wild flowers due, in part, to books of this nature which have been published, and

members of the public have been learning the correct botanical names almost without realizing it. It is a bit disturbing therefore to note that nearly two hundred 'common names' have been deliberately invented, in some cases for species which already have well-established common names.

* * *

NEW YEAR HONOURS

We offer our heartiest congratulation to one of our members, Colonel F. C. Stern, upon whom a knighthood has been conferred for his services to horticulture. For many years he has served on the Council of the Royal Horticultural Society and he is Chairman of the Governing Board of the John Innes Horticultural Institution in England. He visited South Africa during the last spring and we were very glad to have him and Lady Stern at a few of our meetings.

* * *

SEED DISTRIBUTION

The 1954 record of 13,989 packets of seeds distributed free of charge to members of the Society was broken in 1955 when 15,455 packets were sent out to 1,142 members. In addition 3,064 packets of seeds were distributed to botanic gardens and other scientific institutions in all parts of the world.

* * *

FROM THE SECRETARY'S CHAIR

Mrs. Hall is again experiencing great difficulty in receiving members' subscriptions without two or even three reminders during the year. The Grant to the Trustees of the National Botanic Gardens in respect of the year 1955 was nearly £200 less than that of the previous year, and this was almost entirely due to members falling in arrears with their subscriptions. It will be appreciated that apart from being an arduous task the cost involved in sending out reminders is very heavy. If, therefore, you have not already sent your dues for the current year would you very kindly do so as soon as possible, using the form provided in this Journal. By so doing you will earn the grateful thanks of your Secretary.

In conclusion Mrs. Hall would like to add a small note of thanks to all those members who have written to her hoping that she had a happy stay in England last year. She had a most enjoyable leave and enrolled several new members for the Society. This was partly due to the fact that she took a collection of colour slides

of South African flowers with her which she showed at meetings in various parts of the country. On her way over to England Mrs. Hall was invited to make a call on Mrs. M. Blandy at Madeira who has been a member of the Society for a great many years, and visited her lovely garden. This was certainly one of the highlights of a most enjoyable trip.

* * *

SMUTS MEMORIAL FELLOWSHIP

Some years ago money was collected for building a cottage for General Smuts at Kirstenbosch. A site was chosen but before building operations were commenced General Smuts died. The greater part of the money which was collected was devoted to the establishment of a Fellowship for botanical research at Kirstenbosch or the University of Cape Town. The fund is administered by a committee representing the University and the National Botanic Gardens.

The Fellowship for 1955 and 1956 has been awarded to one of our members, Mr. N. S. Pillans, who for many years worked in the Bolus Herbarium. He is undertaking research on the systematics and geographical distribution of the species of *Hermannia* and *Mahernia* in the Cape Province.

* * *

OBITUARY

Since the publication of the last issue of this Journal the Botanical Society of South Africa has lost one of its most distinguished members, Dr. T. B. Davie. Dr. Davie, who was Principal and Vice-Chancellor of the University of Cape Town, died on 13 December 1955.

The death of Dr. E. L. Gill on 5 July 1956 is recorded with deep regret. Dr. Gill was a noted ornithologist and at one time was Director of the South African Museum, Cape Town. He served on the Council of the Botanical Society for many years and, due to failing health, resigned in 1955.

Childhood Recollections of Kirstenbosch at the Turn of the Century

By GWEN EDWARDS

AFTER Mr. Rhodes bought Kirstenbosch the public was allowed to roam over the property. One of our favourite outings was to spend the day picnicking there. Andrew Hawthorn would come with his milk-delivery cart and donkey and the small children would pile into it with the picnic basket. Great lanky Andrew would lead the donkey and the rest of us would straggle along after him, up Wetton Road, across the Main Road, through Riverstone Road, up the long trail of Tenent Road until we reached the upper end of Paradise Estate. There we turned off into a country lane bordered by young pine forest on the right and by wild ground on the left. Here grew tall bushes of pink heath and prickly thickets of 'Cliffortia'. In the flowering season bushes of *Podalyria* scented the air with their pea blossoms. Occasionally we would find an 'Afrikander' or a 'Painted Lady' between the other vegetation.

The donkey-cart would bump over the ruts and pine roots and eventually we would turn into the top end of the Cathedral Avenue and Bishopscourt Road. Past the paddocks we would go where the Bishop's Coloured tenants made merry on high days and holidays. Past the homestead and whitewashed cottages, over more ruts and roots, and so to Rhodes Road where the *Magnolias* might be in flower. A last! a great thrill—we passed through the big gates and reached Kirstenbosch.

Where the great lawn now spreads, there was a thicket of silver-leaved poplars. People had forgotten about the lovely 'Lady Anne Barnard' bath which was later found, after careful probing, under a pile of miscellaneous rubbish. We would pass up under the oaks, and veer left to the mountain stream which lies midway between the present Tea House and the great lawn. No bridge spanned the clear, brown, babbling waters, but that did not worry us. We crossed by stepping-stones and settled our goods under a convenient oak at the edge of the stream.

We paddled, made harbours and launched countless

flotillas of sticks on the waters. We crept rather fearfully up the banks of the stream amid Sword and Seven Weeks Fern, past banks made soft with Maidenhair, bent under bushes of an unprickly species of 'Cliffortia' until we came to clumps of Wilde Amandel, once part of van Riebeeck's hedge.

Later on we would make our way to the old homestead which was falling into disrepair as it had been uninhabited for some time. We used to mount the steps to the stoep and stand fearfully in the open gazing up at the rents in the thatch and at the walls which later crumbled and fell bringing the rafters with them. The Tea House now stands on the site of the old homestead.

Along the stoep was a row of large oaks some of which could only be spanned by the outstretched arms of several of us. The boles of these trees were the source of great joy to us because to the rough bark clung hundreds of the dried split skins of moulting cicada larvae. We must have collected tins full of them and there was great rivalry among the collectors. Sometimes we crossed the road and explored the derelict garden opposite the house. As far as I remember it was divided up by quince hedges.

At the back of the house there was a tangle of brambles and sometimes we struggled over a rubble of stone walls which they concealed. But they yielded a good harvest of blackberries in the season and we collected, too, a harvest of scratched limbs as we gathered the fruit.

Then in 1902 Mr. Rhodes died and his caretaker ran pigs on the estate. I shall never forget our first visit after the pigs were established. They overran the ground under the oaks and fattened on the fallen acorns. Our beautiful clear mountain stream became a series of muddy wallows. We had no wish to go back to Kirstenbosch until the joyful day when Professor and Mrs. Pearson and Mr. and Mrs. Mathews took over to begin the wonderful work which has resulted in the world-famous garden of to-day.

F. H. Holland 1874-1955: An Appreciation

By L. BOLUS

THE passing of Frederick Huntly Holland has left a gap in the ranks of wild-life protectionists that will not easily be filled. For his devotion to their cause was deep and enduring, and throughout his long life he earnestly worked for its advancement. One likes to think an extra joyous welcome came from nature-lovers who had gone before, when 'the trumpets sounded on the other side' for 'dear old Fred'.

And now the Eastern Province Wild Flower Society and other powers that be are naming the wild-flower reserve at Kabega Park after him. It is beautifully situated on the Baakens River, about twelve miles from Port Elizabeth and about two miles from the Cape Road. Surely no more fitting or more lasting memorial than this could possibly have been chosen for the staunch, true-hearted old Bayonian whose name it is to bear. Members of the Society and 'anyone who would like to have a hand in this dual effort of commemorating a good citizen's work and of saving some of our flora for posterity'¹ are joining in parties, armed with garden tools, to transfer to the reserve veld plants now growing on ground claimed for future residential expansion. Special emphasis is laid on the handsome flame-coloured *Homoglossum Hollandii* (Iridaceae), which is restricted to the small area round Port Elizabeth, including Bethelsdorp, Green Bushes and Witteklip. It is hoped that *Aloe polyphylla*, which Fred discovered in Basutoland, and *Agapanthus Hollandii*, will also secure a place in the reserve.

Another organization, the Eastern Cape Wild Birds Society, is planning the formation of a pool or pond for water-fowl and other attractive birds, which would be associated with a second memorial to Fred. The proposal has the full support of Dr. G. McLaghlan, Director of the Port Elizabeth Museum, and the Society is in consultation with the Parks and Attractions Committee of the City Council on the matter.

Fred's first visit to Kirstenbosch filled him with delight; the beauty and grandeur of the setting enthralled him; and he marvelled at the progress that had been made, in so short a time, towards the establishment of a botanical garden worthy of our country and its wondrous flora. 'If I could possibly choose,' he said to Mr. Mathews, 'it would be to work here for the rest of

my days as a gardener under your direction.' The wild part of Kirstenbosch, in its own way, equally appealed to him—the dainty carpet of wood-sorrel (*Oxalis incarnata*) under the trees on the way to the contour path, which passes through Window and Skeleton Gorges, 'Celtis Glade' and the tree ferns, the 'King of Kirstenbosch' (the largest of the wild stinkwoods), and the romantic 'Aloe Knoll', where amid great boulders and stunted lichen-bearded trees grows *Aloe succotrina*, which had remained *perdue* for more than the two hundred years that had elapsed since it was first taken to Europe—*perhaps* from that very spot. For it was not until Dr. Marloth found it here in 1905 that a precise locality was actually recorded—the *Flora Capensis* (1897) giving merely 'South Africa; without precise locality'. He rejoiced in the rich bird-life—the little Cape Flycatcher darting from a twig upon a passing fly, the resounding, musical call and response of the Waterfiskaal to its mate (perhaps the fullest and most melodious of all South African bird-notes, and heard to perfection in the woods of Kirstenbosch), and among the proteas and heaths on the open slopes the lovely little Orange-breasted Sunbird. Kirstenbosch became one of his spiritual homes.

Fred's life was a very strenuous one. He began earning his living when he was fourteen as an office boy to a merchant firm in Port Elizabeth. He had lost both parents and the five years at his beloved St. Andrew's ended his school career. But in that fine training ground of character he had learnt the value of hard work and he rose to become one of the partners in the firm. In 1901 he married Mildred Pettit. We had been school friends in the early nineties, and it was from her that I first learnt to know of Fred and his outdoor pursuits. She was our head girl, much loved and honoured, and one of the two girls who were the first to matriculate from the Collegiate School in Port Elizabeth. Thirteen years later my husband and I visited them in their country home at Despatch and had many glimpses of their supremely happy married life. A large part of the estate was still uncultivated and there was a wealth of wild life. Their only child, Geoffrey, who also became an Andean, was growing up in the home of his mother's childhood, and Fred himself, bubbling over with energy, was interested in breeding pedigree cattle, growing

¹ *Eastern Province Herald*.



Photo: Pearl Freeman.

PLATE 2
F. H. HOLLAND, 1874-1955

experimental crops, and in other matters connected with a country gentleman's activities, with the birds for his constant companions. For several more years, up to 1922, no dark cloud dimmed the radiant glow of their happiness. Then came Mildred's failing health, her long illness and the bitter crushing blow of her death. But there was still the boy to be cared for, and the stricken man carried on bravely, as he did also when his son was taken fifteen years later, in the spirit of the poet's² bidding to—

'Count each affliction, whether light or grave,
God's messenger sent down to thee; do thou
With courtesy receive him; rise and bow;
And, ere his shadow pass thy threshold, crave
Permission first his heavenly feet to lave;
Then lay before him all thou hast; . . .

. Grief should be
Like joy, majestic, equable, sedate;
Confirming, cleansing, raising, making free;
Strong to consume small troubles; to commend
Great thoughts, grave thoughts, thoughts lasting to
the end.'

Some years later, during the post-war depression, the firm in which all his capital was invested failed and Fred became a ruined man. The alternative of going insolvent was unthinkable, and he asked for time, which was granted, to enable him to pay off his liabilities. Then began the heroic struggle that lasted some twelve years or more, and that ended in such a brilliant triumph. For every penny of the large sum was discharged, and Geoffrey's father's name remained more honoured than ever. Throughout this ordeal he was cheered and strengthened by the loving sympathy, care and comradeship of his second wife, May, who wholeheartedly shared his hobbies. All the fine days that could be spared from the great task they spent in the open, soothed and rested by the utter peace they found in the solitudes of nature. His interest in the African people was maintained and he was gratified by the splendid success achieved in the better housing of the Natives, largely through May's efforts as a city councillor. He also 'continued to maintain, year by year, the Fred Holland Scholarship he had founded at St. Andrew's; and he kept up his membership of the College Council. . . . When coming to Grahamstown to attend the Council Meetings it was his custom, even when past the Psalmist's three score

years and ten, to travel second class by the night train from Port Elizabeth.'³

Although the pace perforce was considerably slackened, there was always much useful work to occupy a man of his wide experience and warm sympathies; and there was the supreme joy of having Geoffrey, who had returned from England with his wife and son to join his father. All through the last war his firm, Holland and Whyte, ran a timber mill at the Hogsback, supplying some much-needed timber from the government forests there.

Fred was a foundation member of Race-Relations and he was now able to give more help than ever to the Africans at New Brighton. He established a club for the boys, and, largely through his efforts, the Union Department of Education agreed to subsidize the Night School for Adults. He founded the scholarship enabling students from the Newell High School to go on to Fort Hare. He also initiated the scheme of training African labourers, paying for the tools of each worker and subsidizing their wages. Now only African labour is used for the building of houses in New Brighton. He established the first crèche by purchasing an old church house and handing it over to Child Welfare, and collected funds for the erection of the Walton Orthopaedic Home, which has helped many African cripples. 'In the death of this benefactor, we have lost a humanitarian. This is the only tribute we can make just now to so great a man. May his tribe increase!'⁴

Plant-collecting still gave him great pleasure. He made and registered well over 4,000 collections, most of which have been incorporated in the Albany Museum Herbarium and the Bolus Herbarium. Living collections of interesting plants were frequently sent to Kirstenbosch, many of them in response to special requests from the Curator of the Gardens.

During 1951 and 1952 Fred and May treated themselves to delightful travels in Europe. He wrote to me of 'one of the five islands in Lake Maggiore exclusively used as a National Botanic Garden for exotics', which impressed him very much; of the wild flowers in Norway, 'including quite a representative collection growing in the hotel garden at Stalheim in the Mountains'; and of Capri, 'where we enjoyed seeing Dr. Munthe's "San Michele"', and we could so well picture all that he wrote about the fishermen and peasants; and we lived with him in his restoration of the ancient dwelling, before he retired to his refuge, "The Tower", a mile behind the

² Aubrey de Vere.

⁴ Annexure to Minutes of Second Annual General Meeting—South African Institute of Race Relations.

³ *The Andean*, June 1955.

hill slope. We walked down there, but found a very rusted chain and padlock on the high gate, so could not get a closer look at the peaceful spot where he spent about fifteen years when his eyesight was failing, before ending his days as the guest of the King of Sweden. Alas his intention that Capri should be a bird sanctuary is not a success. Grown men still shoot even sparrows with shotguns and small boys use catapults.' In England he saw 'Peter Scott's fascinating waterfowl near Bristol'. He also gave a glowing account of his grandson, Briant, then 17, who had 'got on splendidly at Radley College and will go to Cambridge to follow Geoff's footsteps in studying engineering'.

Plans were ripe for yet another tour this year. But it was not to be. He was in Grahamstown and had attended a meeting of the College Council in the morning. The same afternoon he was suddenly taken ill and died

twenty-four hours later. The final scene on that lovely morning of April the fourth is laid before us in a touching letter of sympathy written to May by the Head Prefect of St. Andrew's:

'We were proud to number him amongst our ranks, and we recognized him to be one of the school's greatest benefactors, if not the greatest. When you saw the boys of St. Andrew's lining the sides of Somerset Street after the service, they were not there by command of Mr. Currey, but by his permission. They wished to be there to pay their last respects to one whom they saw to be their ideal of an Andean. They remembered him as the man who always used to read the lesson at evensong on St. Andrew's Day in the Chapel. And finally I, and the five other boys who went to the cemetery, were proud to have carried him to his last resting place.'

Saving our Flora

By H. B. RYCROFT

(Extract from a talk given at a Symposium on Nature Conservation in Cape Town, October 1955)

ONE might wonder what the countryside in South Africa looked like when the first settlers arrived, and to what extent it has changed during the last 300 years. It is evident that natural vegetation has had to give way in the face of encroachment by towns, agriculture, forestry and industry, as it must in every civilized country in the world, but we must ask this question: To what extent has the vegetation changed in those areas which are not actually built upon or cultivated? This is a very important and serious question to answer because in the final analysis, life on earth depends upon healthy vegetation. Without vegetation there can be no animals and no birds and the soil would be washed away. The starting point, therefore, in the conservation of our natural resources is obviously the conservation of our vegetation.

We would do well to think of some of the ancient civilizations of the Middle East and elsewhere which were completely wiped out, not because they were broken in war but because they denuded their land of forest and other vegetation. Great engineering works on the plains of the Tigris and Euphrates, for example, could do nothing to halt the advance of the desert and to-day palaces and even cities lie buried beneath the sand—a grim reminder and a warning to us in this country.

Should we not, therefore, take stock of our own position?

When settlers landed at the Cape in 1652 two of their first requirements were timber and grazing, and van Riebeeck lost no time in exploring the Peninsula in search of suitable trees. After finding the forest at Hout Bay, he wrote: 'They are the finest forests in the world, and contain as long and thick spars as one could wish', and further: 'It is surprising to see the fine forests which are scattered all about the mountain sides; pity it is though there are no roads to them.'

As you can imagine roads were soon constructed for the express purpose of reaching the forests. Everybody had the right to fell the trees, and within a few years most of the larger trees had gone. Some of them had possibly taken 1,000 years or more to grow. Van Riebeeck realized that his timber resources were dwindling and he issued a notice or 'placaat' prohibiting

the cutting of trees except under certain special conditions. Subsequent Governors issued similar notices and offenders were even threatened with the death penalty, but in spite of this, destruction continued to take place and to-day all we have are the remnants of forests that once boasted large trees of Yellowwood, Black Stinkwood, Black Ironwood, Assegai, Cape Beech, Hard Pear, White Pear and others. Most of these species are extremely slow-growing and data collected at Knysna have shown that it takes more than 200 years for a Yellowwood to reach a diameter of only 19 inches.

Even if these remnant forests are given full protection, as at Kirstenbosch, a few hundred years will still be required before the trees reach the size they were in van Riebeeck's time.

This sad story is not the story of the Cape Peninsula forests alone; it is the story of practically every forest in the Union, and many of them have suffered even a worse fate.

Over-exploitation has ruined nearly all our forests but this has not been the only factor. Fire has also played its part. Although the forests themselves do not burn readily—if they did there would be no forests left to-day—fires in the adjoining veld do scorch the marginal trees which may die and then burn merrily during the following fire which in turn scorches the next zone of trees. In this way the forest margin slowly but surely recedes. In 1880 one of the largest forests in Natal was estimated by a Government Commission to cover an area of 80,000 acres. Sixty years later, in 1940, I surveyed this forest and found the area to be 20,000 acres; a reduction of 60,000 acres in sixty years, or an average of 1,000 acres per annum.

Forests occur over a very small area in South Africa, and it is for this very reason that we should be most concerned about their protection. They cover only 0.2% of the land surface of the Union compared with 5.8% for Australia, 25.0% for Canada, 38.7% for Russia, 47.5% for Brazil and as much as 53.3% for Japan.

The establishment of plantations of fast-growing exotic trees like the Pines, Tan Wattles and Eucalypts has often been criticized because these plantations

replace some type of natural vegetation. While this is certainly true we must remember that the exotic trees are producing timber which otherwise would be taken from the forests, particularly in the Native areas. These plantations therefore have helped to ease the drain on the forests.

It is estimated, for example, that in the construction of the average Native hut no less than 500 to 1,000 saplings are required. In the old days these saplings were cut out of the forest and it can therefore be realized that many thousands of potential timber trees were destroyed annually. To-day the Natives use practically nothing else but introduced wattles.

So far I have mentioned only the forests and have explained that most have been severely damaged or even completely destroyed. Have the other types of vegetation which cover the rest of the country fared more favourably? The answer, unfortunately, is No! In practically every part of the country the veld has retrogressed and if a halt is not brought to this degeneration the future outlook is indeed gloomy.

Recent published evidence indicates that the Karoo is on the march and is extending eastwards and northwards at an alarming rate, and that it is invading areas of sweet grassveld. In some places it is estimated to have spread as much as 150 miles into the grassveld. This is a matter not only of academic interest but of extremely serious economic importance, because the spread is over farms which produce our food.

If a remedy is to be found it is necessary to ascertain the factors which are responsible for this state of affairs. One of these is farming practice, and particularly that of the past.

To understand the position it is important to realize that vegetation consists of plastic, living beings—the plants—and is therefore liable to change according to the manner in which it is treated or managed. Treat it wisely and it will respond; treat it unwisely and it will disappear, to be replaced by an inferior type of vegetation or by no vegetation at all.

The wild life population of South Africa was certainly vastly greater, one, two or three centuries ago than it is to-day, and it is possible that it was greater than the total present animal population including all the domestic animals. Why then, greater destruction to-day by fewer animals? The answer is largely fences, but fences might also provide a remedy.

Vast herds of wild animals would congregate and feed at one spot, removing practically all the palatable vegetation and would then move on to pastures new, to

return again after the vegetation had rested and regenerated.

Under present-day practice on many farms the sheep, cattle or goats are fenced in on an area which theoretically should provide all the food that is required, and there the animals remain year after year. Naturally they graze on the most palatable species and these species must obviously be eliminated in time. This is exactly what is happening and this is one of the main reasons why the unpalatable Karoo bushes are invading the grassveld.

Under a system of rotational grazing on the other hand whereby a farm is fenced off into a number of camps or compartments, each camp is grazed and allowed to rest, and all the species have a chance to regenerate.

Some wise farmers have adopted this system and they have been amazed at the increased carrying capacity of their veld, and the manner in which the grasses return.

I should perhaps approach this problem of the conservation of our natural flora from a more personal and domestic point of view, and I should like to say something about the functions and aims of the National Botanic Gardens at Kirstenbosch and the part we can play in the conservation of our natural resources.

The primary objects of the Gardens are scientific and educational: the collection, cultivation and preservation of the natural flora of South Africa.

South Africa is endowed with an amazingly rich flora which numbers about 16,000 species of flowering plants, compared, for example, with about 1,500 for the whole of Great Britain, and about 2,500 for South Australia which in area is nearly the size of the Union. It is possible that we have the richest flora in the whole world. Endowed with this rich, interesting and beautiful flora, it is our duty as guardians to preserve it for generations to come.

Much has been and is being done to protect our vegetation by legislation, enforcement of the wild flower laws, propaganda, publicity and the creation of nature reserves. All these have played a very important part and should be encouraged and promoted in every possible way. This is being done with a great deal of success by the young but active Departments of Nature Conservation.

But at institutions such as Kirstenbosch we are able to carry the work further, by cultivating these plants under skilled supervision.

I have mentioned that the total flora of South Africa probably numbers about 16,000 species. Of these approximately 4,000 are at present under cultivation at



Photograph by courtesy of Cape Times, Ltd.

PLATE 3

Miss Edith L. Stephens, donor of the Cape Flats Flora Reserve, admiring an exhibit at the Wild Flower Show held on 8th October, 1955, in the Lecture Hall, Kirstenbosch (see News and Notes).

Kirstenbosch. In other words, about a quarter of South Africa's flora is already under cultivation and is being preserved at Kirstenbosch.

However, the climate of Kirstenbosch, with our heavy winter rains, is not suitable to grow all the plants of the more arid regions. For this reason the Karoo Garden, a branch of Kirstenbosch, was established near Worcester a few years ago. Here we possibly have the largest collection of South African succulents in the world growing in the open.

To date our efforts to preserve our flora by cultivating the plants and keeping them under observation have met with considerable success, but still, at Kirstenbosch and at Worcester conditions are not quite suitable for all our South African species. During the last few months, however, we have been very fortunate in receiving gifts of land in areas with different climates and soils, so we shall now be able to grow a large number of South African species which prefer these conditions.

Land in the Darling area has been ceded to us by Mr. Tienie Versveld and in this new Garden we shall introduce as many as possible of the beautiful species which once occurred so abundantly in the Sandveld, but which are now giving way to grain crops. Many of these species which are fast disappearing occur in no

other part of the world, and once lost would be gone for ever.

We have also been given some land, by Miss Edith Stephens, on the Cape Flats where we hope to propagate the species of that area which once were so abundant but which to-day have been almost completely ousted by the spread of exotic weeds such as the Australian Wattles, Port Jackson and Rooikrans.

As time goes on we hope to acquire additional land in all parts of the Union, thus making the Institution a truly National Botanic Gardens.

This work of preserving our South African flora by cultivating the plants is not confined to Kirstenbosch and its branches (or its Regional Botanic Gardens) but is being carried out in all parts of the world. We feel we are rendering a national service by distributing South African seeds to the horticultural trade, to Botanic Gardens and similar institutions and to the 2,700 members of the Botanical Society of South Africa. Last year, for example, nearly 20,000 packets of seed were sent free of charge to members of the Society and to Botanic Gardens in practically every country of the world.

We are proud of our flora. It is a heritage of nature and it is our duty as guardians of nature's gifts to protect and cherish it for all time.

Some South African Herbaceous Perennials and their Cultivation

By H. F. WERNER

DEFINITION

THE term herbaceous perennial in horticultural practice is usually applied to those perennial plants (other than bulbous) where the growths above ground die down each year and new growths are produced from the root-system in the ensuing vernal season.

In mild areas the resting period may not be definite, but cutting back of the flowered growths is, nevertheless, necessary in order to encourage the production of vigorous new growths from the base.

PROPAGATION AND GENERAL CULTURE

True herbaceous perennials may, as a rule, be easily propagated by division, but most of our indigenous species, which may be termed 'herbaceous', do not, as a rule, freely increase from the root-crown in such a manner that propagation can readily be carried out by division: in such cases they are, therefore, best increased by seeds—or cuttings—and are fairly easily raised in this manner. The species dealt with in this article are those which are usually to be found listed in the seed lists issued by the National Botanic Gardens.

It is not intended to deal with the basic principles of seed growing here, as this has been dealt with in a previous article.* It should be noted, however, that seeds of some perennials are sometimes slow in germinating and extra care in regard to moisture content and shading of seed-beds, whether in the open ground or in containers, is necessary to prevent fluctuations which will interfere with germination. The seedlings of some species also tend to develop more slowly as compared with, say, annuals, and may 'damp off' more easily.

The best means of sowing the seeds is in 'flats' (i.e. boxes or tins) using a lightish soil mixture over good drainage. Seedlings should be pricked out into flats, again using a light mixture containing a little leafmould or compost, with a dusting of ready mixed fertilizer. When strong enough the seedlings can be transferred into individual containers (2 lb. jam-tins or 4-inch earthenware flower-pots) before planting into final positions. Sowing of seeds *in situ* is not recommended.

Propagation by cuttings is often useful. Care is, however, necessary in shading and watering as the somewhat sandy soil mixture required is apt to dry out very quickly; a cool, shady spot on the south side of a wall should be selected. A garden frame with the glass painted or shaded is very useful.

In preparing the soil in the garden, depth and general good physical condition of the soil will be of great value as perennials are deeper rooted and more vigorous than, say, annuals, and will occupy the same position for a number of seasons. For that reason a little bonemeal is very useful to incorporate when digging is in progress.

A number of our own herbaceous perennials should be fairly hardy in cold climate Northern hemisphere countries if the clumps are covered in winter with a layer of leaves.

DESCRIPTION OF SPECIES

The number of 'true' herbaceous perennials among our indigenous plants which are in cultivation is perhaps limited. The species listed below have been tested over a number of years at the National Botanic Gardens, Kirstenbosch, and their value, likewise beauty, demonstrated to the visitor to the Gardens. The descriptions appended are of necessity very brief ones:

Aerva leucura (Amarantaceae): 3-4 ft. White. March to May. This plant has erect stems bearing numerous small flowers in softly woolly, dense spikes, slightly branched, arising from the axils of the upper leaves on the stems. From, chiefly, the Transvaal and Southern Rhodesia, this plant prefers full sun and will stand dry conditions extremely well. There is a tendency for some of the more heavily laden stems at flowering time to recline, and light staking in a border may become necessary. In the rock garden, however, the plants should, of course, be allowed to adopt their own manner of growth.

Seeds are extremely small and are sown in spring and the plantlets 'grown on' in individual containers, before planting into final positions, either as one- or two-year-olds.

* 'General Hints on Raising Indigenous Plants from Seed', *Journal of the Botanical Society of South Africa*, Part XXXIV, 1948.

Clematopsis stanleyi (Ranunculaceae): 2-3 ft. Pale pink to mauve-pink. January to March. The individual flowers are fairly large, comprising four petal-like sepals, together with a large cluster of stamens. This is a highly decorative plant both when in flower or after flowering, as in the latter stage the long silky styles persist and the seed heads are ideal in floral arrangements. In the flowering stage the plant has, except in the more divided nature of the leaves, a resemblance to that well-known garden plant *Anemone japonica*.

The genus *Clematopsis* has been described in Hutchinson's *A Botanist in Southern Africa* as a 'veritable missing link' in the evolution of the genera *Anemone* and *Clematis*, and a relic of a primitive flora which existed on the old plateau of Africa and Madagascar. There are beautiful species of *Clematopsis* found from Angola to Kenya, which remain to be introduced into cultivation. *C. stanleyi* comes from the Transvaal, Natal and Southern Rhodesia.

This will be found to be a particularly valuable subject in the garden, as flowering commences much earlier in the season than the majority of our indigenous herbaceous perennials. Seeds are freely produced and are best sown in spring and early summer. The seeds should be sown thinly in boxes or tins and the young plants (which are slow growing) left undisturbed until the ensuing spring when, if intended for the rock garden, they may be planted in pockets of good, deep soil; if for the border, or foreground of a shrubbery, it would be advantageous for the young plants to be 'grown on' in tins for another year before setting out in their permanent positions. A warm, sunny situation gives best results. During winter the plants are cut down to ground level to encourage the production of vigorous new growth from the root-crowns in spring.

Dicoma zeyheri (Compositae): 1 ft. February to May. This is a very interesting and distinct plant with thistle-like heads, the bracts being pale green, marked with maroon and edged silvery-white. The disc florets are maroon. This is an admirable plant for a sunny spot in the rock garden: a group in the Mathews Rock Garden at Kirstenbosch always invokes a deal of interest, and this plant deserves to be grown much more in rock gardens generally.

The seeds, which are freely produced, are sown in spring, and they usually germinate well. The young plants grow fairly rapidly and should be transplanted (preferably after a shift into small individual tins or pots, as soon as strong enough to handle) into permanent positions: a few may flower at the end of the first season.

Erlangea rogersii (Compositae): 3ft. Mauve. November to March. An interesting plant which closely resembles the well-known *Ageratum* in respect of its fluffy mauve heads. Like *Ageratum*, it is a member of the discoid section of the daisy family in which all the florets are tubular.

This plant may be classed either as an evergreen perennial or herbaceous perennial, but even if treated as one of the former it should receive regular attention by the removal during the growing season of flowered wood to encourage young growth. In winter the plants should be cut back somewhat harder to encourage new growth from the base in spring.

This *Erlangea* has proved itself to be very adaptable at Kirstenbosch—responding to various soils, degree of moisture, full sun or partial shade. Seeds are small but freely produced, and there is no difficulty in germinating them; they can be sown at most times of the year and the seedlings transplant readily. Cuttings are also fairly easily rooted.

Gerbera jamesonii (Compositae) ('Barberton Daisy'): 1½-2 ft. Scarlet. October to March. A very well-known plant in which the species is cultivated almost to the same extent as the hybrid strains of singles, semi-doubles and doubles which have been evolved in many colour forms from the original cross made, as far as I have been able to trace, at the University of Cambridge Botanic Gardens by R. I. Lynch, who was Curator from 1879-1919. As long ago as 1891 he showed *G. jamesonii* before the Royal Horticultural Society, and a First-class Certificate was awarded. This herbaceous perennial is undoubtedly one of the most valuable plants of its kind both in the garden and as a cut flower. Habitat: eastern Transvaal.

There appear to be many misconceptions about propagation and other requirements. While viable seeds are not always produced in abundance, for example, they may, however, be stored successfully in stoppered glass containers for a year without serious deterioration. Again, in sowing the seeds, some growers insist that the seeds must be inserted in a perpendicular position with the apex (bristle-end) just level with or just below the soil level: this may be a good method where a small quantity of seeds is being dealt with. But the usual trouble with rotting of the seeds, or 'damping off' after their germination, is still liable to occur unless care is exercised in sowing in well-drained seed-beds, and controlling the watering.

Seedlings are pricked out when strong enough to handle into flats and later transferred into individual

small earthenware flower-pots, or planted out in rows in nursery beds, and 'grown on' until ready to plant into permanent positions. Planting may be done at any time during summer months. This plant does particularly well in the rock garden but beds and borders are, of course, likewise suitable.

Established plants (which are best left undisturbed for a few seasons) when requiring replanting may be lifted and divided in spring and early summer. The crowns of the plants should never be planted deeply. The soil should be well prepared beforehand by the addition of compost or leafmould and a little bonemeal, while a little lime may be added, particularly in winter-rainfall areas. In summer when the plants are in full growth light dressings of a balanced, ready mixed fertilizer should be given to ensure a long flowering season and as an aid to seed production.

Helichrysum fulgidum (Compositae): 2-3 ft. Bright yellow. April to June. This is an interesting 'everlasting' with bright yellow bracts comprising the involucre, and darker yellow florets the disc. It deserves a place in the rock garden, wild garden and as groups in the more formal border. The plants are well branched.

The genera *Helichrysum* and *Heliopsis* (which are closely related) contain some brilliantly coloured species not always easy to establish, unfortunately, but *H. fulgidum* presents no difficulties either in its raising or ultimate establishment.

Seeds are sown in spring and germinate well, and the young plants are planted out as soon as strong enough to handle.

In the case of old plants, these should be cut down after flowering each season. If flower heads are wanted for drying, cutting of the stems should be done before the seeding stage is reached (usually indicated by the crumbly state of the discs). They are then tied in bunches and suspended, with the heads downwards, in a dry, airy spot under a roof.

Leonotis leonurus (Labiateae) ('Lion's Tail'): 6 ft. Scarlet. November to April. A well-known plant, found wild from the Cape to Natal and in the Transvaal, which has some particularly good qualities as a border plant, as well as for the shrubbery, or in the rock garden where height is required.

This shrubby plant is often left untouched after flowering but should be cut back in winter to encourage vigorous regrowth in spring. The Lion's Tail is easily grown in almost any type of soil and situation but prefers warmth and reasonably well-drained soil.

Seeds are freely produced and germinate well. Propagation may also be carried out by cuttings. There is hardly any necessity for division to be employed, and furthermore old-established plants usually give the finest displays. Whorls of flowers appear at regular intervals up the stems, each whorl producing a succession of flowers, thereby giving a long display.

A particularly good variety of *L. leonurus*, named 'Warren var.', received the Award of Merit in 1925 from the Royal Horticultural Society.

It is interesting to observe that the flowers of the Lion's Tail are not actually coloured, but produce their effect from the brilliantly coloured fur which covers the corolla-tube and upper lip. The albino variety occasionally cultivated is, therefore, a variety where the hairs do not contain the scarlet pigment.

Nidorella auriculata (Compositae): 5 ft. Yellow. March to May. An extremely useful border plant from the coastal summer-rainfall areas. It will stand, however, an extraordinary amount of drought during the dry summers here in the western Cape.

The rigid stems, somewhat well clothed with leaves, become branched at the top and produce numerous small yellow flower heads. The disc florets, which are tubular, and small, are tightly massed. Ray florets exist but are rather minute.

The seeds, which are produced freely, are sown in spring and the plantlets may be planted directly out or first established in small individual tins or pots. The majority of the plants will flower in the first season. Old plants are cut down after flowering each season to encourage young growth from the base.

Pycnostachys reticulata (Labiateae): 5 ft. Mauve. April to May. This is an excellent border plant for the milder areas. Habitat: north-eastern Transvaal and Natal. After a few years' trial at Kirstenbosch it has proved its worth, except with regard to the amount of seed produced which has been somewhat limited. Fortunately it can easily be propagated by cuttings—which are taken from near ground level when new growth commences in spring after the old stems have been cut down.

This species has, so far, withstood attacks of eelworm much better than that fine blue-flowered species *P. stuhlmannii* (*P. remotifolia*) which may, in part, be due to the better-drained soil conditions apparently preferred by *P. reticulata*.

The stems are erect and slightly branched at the top, bearing attractive mauve flowers in dense spikes which last a long time.

Pycnostachys stuhlmannii (Labiatae): 3-4 ft. Vivid blue. April to June. A fine species from the north-eastern Transvaal, Southern Rhodesia and Nyasaland. This plant, with its intense blue flowers in spikes prefers a somewhat moist position or one which can be kept watered regularly. In dry situations it tends to become somewhat stunted.

Seeds are not freely produced, unfortunately, but propagation is readily carried out by cuttings taken from the base of the plants in spring after the old stems have been cut down. Like *P. reticulata*, this species, due to its soft nature and late autumn-flowering habit, is only suitable as a garden plant for mild areas. The seeds of both species are sown in spring and the plantlets 'grown on' in small pots or tins prior to planting into permanent quarters.

Phygellus aequalis (Scrophulariaceae): 3 ft. Pink. December to March. A useful and attractive addition to our list of herbaceous perennials through its summer-flowering habit and its colour. It received an Award of Merit from the Royal Horticultural Society in 1936.

The pendent, tubular flowers borne in numbers towards the top of the stems, are Penstemon-like, pink in colour on the outside and yellow inside. Flowers are borne over a long period.

This plant enjoys either full sun or partial shade and any average type of garden soil seems to suit it. Habitat: Transvaal, Natal and Swaziland.

Seeds are small and are best sown in spring. Cuttings may also be employed as a means of propagation. Young plants should be 'grown on' in small pots or tins prior to planting into final positions. This species is useful in the border, but even more attractive in the rock garden where a deep pocket of soil can be provided. It is a useful cut flower. The old flowered growths should be removed during the winter to encourage the production of new growth in spring.

Another species, *P. capensis*, from the Cape Province, Basutoland, etc., is also very charming with somewhat fewer flowers per stem but darker in colour than the previously mentioned species, and preferring a situation which is more or less permanently moist.

Sutera grandiflora (Scrophulariaceae) ('Sutera', 'Wild Phlox'): 3-4 ft. Mauve or light purple. November to May. This is a splendid herbaceous perennial from the eastern Transvaal and Swaziland, which shows up to advantage in large beds (where it is valuable owing to its long flowering season), borders and also the rock garden.

This plant does not like wet conditions at the root. A warm, sunny, protected position, well drained, should receive prior consideration over type of soil, although a light to medium loam, with a little compost and bone-meal added, would complete the ideal growing condition. Under such conditions, in mild areas, the flowering is practically non-stop over a number of months.

Flowers appear in clusters at the tops of the tall stems and continue to open in succession over a long period. The leaves are aromatic. Cutting back towards the end of winter is advisable to rid the plants of worn-out stems, as the young vigorous growths arising from the base produce ultimately the finest displays.

The seeds, which are very small, are produced in quantity and germinate freely, but care is necessary in preventing wholesale 'damping off' through over-wet conditions of the seed-box. The best time to sow is in spring, although end of summer and autumn sowings can be made where a glasshouse or garden frame can be utilized—especially in winter-rainfall areas or where frosts are a danger. The seedlings should be pricked out into flats and then 'grown on' in small pots or tins prior to setting out in final positions.

S. grandiflora is a good cut flower and looks particularly good under electric light. This species received the Award of Merit from the Royal Horticultural Society in 1930.

Veronia glabra (Compositae): 5 ft. Mauve-blue. April to May. This is definitely a plant for the back of the border where its erect stiff stems, clothed with toothed leaves, and topped with clusters of cornflower-like heads makes this a useful subject during late summer and autumn.

This member of the daisy family belongs to the discoid section in which all the florets are tubular, giving the heads a fluffy appearance.

Usually a fair number of fertile seeds develop in the heads and should be sown in spring, the seedlings then pricked out and later planted into permanent positions or first grown on in small pots or tins before planting out. Seeds may also be sown in summer and in this case the plants would have to be carried over the winter in small individual tins and planted out in spring.

Final position should be in full sun, and any average type of garden soil seems to suit this species—which is also able to withstand drought conditions to a remarkable degree.

Seeking Aloes in Madagascar

By G. W. REYNOLDS

EARLY in June 1955 I flew to Madagascar to study the Aloes of that country at the invitation of Professor J. Millot, Director of the Institut Scientifique de Madagascar. Dr. R. Paulian, the Deputy Director, met me at the airport and drove me to the Institute's Guest House at Tzimbazaza, a few miles from the centre of Tananarive. Professor Millot had been detained in Paris and I was not to meet him until after my travels through Madagascar had been completed.

Masses of *Aloe chabaudii* decorated the entrance drive to the imposing three-storeyed administrative building that towers above the gardens.

The scientific gardens at Tzimbazaza were originally established in 1927, and were taken over by the Institute in 1947. Since then they have been enlarged, and now cover about seventy acres. Two small lakes with a roadway separating them divide the gardens into two main parts—the Aloearium, where the Aloes and other plants from Africa are grown, and the area reserved for the cultivation of the indigenous plants of Madagascar.

In the background stands Tananarive's large, densely populated hill with the Palace of the Queens on the highest point. The Palace is now a National Museum and contains a large collection of historical relics.

In the Silver Palace, fossils and models of Madagascar's extinct fauna are displayed, and these include the largest bird the world has ever known, *Aepyornis maximus*, eleven feet high. Models of giant lemurs the size of gorillas are mounted in a wall cabinet, and the vertebrae plus tail of a Dinosaur, unearthed near Majunga, stretched thirty feet along the floor.

My first view of the African Aloes in the Aloearium filled me with amazement, and it did not take long to realize that I was viewing the world's finest collection of Aloes.

The Aloes of South Africa were very well represented. Small species such as *A. saundersiae*, *A. albida* and *A. myriacantha* grew contentedly, so did *A. humilis*, *A. aristata*, *A. brevifolia*, *A. glauca* and *A. microstigma*. Groups of *A. globuligemma* put up a colourful show, and *A. pretoriensis*, *A. saponaria*, *A. striatula*, *A. striata* and many more were seen. Numerous hybrids of *A. arborescens* splashed the gardens with colour.

But what was positively breathtaking was to find such difficult-to-grow species as *A. dichotoma*, *A. pillansii*,

A. krapohliana and even *A. pearsonii*, *A. ramosissima*, and *A. melanacantha* growing alongside *A. succotrina*, *A. plicatilis* and *A. bainesii*. Species from arid deserts were quite happy under the same conditions as species from heavy-rainfall areas.

The Aloes of tropical Africa were also well represented. *A. termetophila*, *A. sereti*, *A. angiensis* and *A. dawei* from the Belgian Congo were there, and *A. schweinfurthii* from the Sudan grew luxuriantly. The Ethiopian species *A. rivae*, *A. yavellana* and *A. calidophila* looked quite at home, and so did *A. microdonta*, *A. ruspoliana* and *A. pirottiae* from Somalia.

Two rare species from Kenya, *A. erensii* and *A. turkanensis* were thriving; and *A. mawii* from Nyasaland was in flower—so was the rare *A. ortholopha* from the Umvukwes near Salisbury, Southern Rhodesia. These are only a few names; many more could be listed.

Leucospermum reflexum (8 ft.) was in full flower, and *Protea mellifera* was growing strongly.

There must be upwards of two hundred different species of Aloe in cultivation at Tzimbazaza, and I know of no other gardens that can compete with this almost incredible total.

Many years ago I asked Professor Compton what the best ingredients were for growing South African plants. He replied, 'Love and manure'. I do not know about the manure, but I do know that no man could bestow more loving care on his Aloe collections than does Professor Millot, and the gardens merely reflect his spirit.

In the Madagascar section I saw for the first time, several of the Aloes I was later to find growing wild. Two species call for special mention—*A. capitata* Bak. and *A. bulbillifera* H. Perr.

A. capitata with its capitate racemes of golden flowers, is one of the most beautiful Aloes in the world, and it also has the peculiarity of its flowers opening from the top downwards. This character is not known in any other species of Aloe, although I have seen it in two species of *Kniphofia* in southern Ethiopia.

A. bulbillifera and the variety *paulianae* are unique in the genus. The former develops bulbils on the branches of the inflorescence, the latter on the main peduncle and not on the branches. After the flowers are over, these sessile bulbils grow into rosettes of leaves five inches

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Botanical Society of South Africa

CALENDAR OF MEETINGS FOR 1956

Tuesday, 28 February, 8.15 p.m. Lecture Hall,
Kirstenbosch.

'How to Sow Kirstenbosch Seeds.' Talks and
Demonstrations.

Tuesday, 20 March, 8.15 p.m. Lecture Hall,
Kirstenbosch.

Annual General Meeting, followed by 'Some
Monocotyledons of the Western Cape.' Colour
slides and talk by Dr. W. P. U. Jackson.

Tuesday, 15 May, 8.15 p.m. Lecture Hall,
Kirstenbosch.

'My Work at Kirstenbosch.' Talk by Miss M.
E. Johns, Field Biologist.

Saturday, 15 September, 3 p.m.

'Visit to Darling Flora Reserve.' Cars meet 6
miles beyond Darling on Ysterfontein Road.

Saturday, 22 September, 3 p.m.

Anniversary Meeting, Karoo Garden, Worcester.
Tour of Garden by Mr. J. Thudichum,
Curator.

Saturday, 6 October, 11 a.m.

Annual Gathering of Members, New Lawn,
Kirstenbosch.

Followed by WILD FLOWER SHOW. Lecture
Hall, Kirstenbosch, 12 noon.

Sunday, 7 October, 11 a.m.

Continuation of WILD FLOWER SHOW. Lecture
Hall, Kirstenbosch.

Saturday, 27 October, 3 p.m.

'Visit to Isoetes Vlei, Cape Flats.' Cars meet
Philippi Police Station, 3 p.m.

Saturday, 10 November, 3 p.m.

'Visit to a Member's Garden.' Mrs. C. Barlow,
Vergelegen, Somerset West. Cars meet
G.P.O., Somerset West, 2.50 p.m.

*Members are cordially invited to bring their friends along to the above Meetings.
Refreshments served at all Meetings.*

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A MEMBERSHIP FORM IS
ENCLOSED IN THIS JOURNAL

across, and eventually fall to the ground and take root. Unfortunately this peculiar species does not withstand the rigours of the Transvaal's icy winters.

Dr. Paulian placed a Land Rover with driver at my disposal and left no stone unturned to ensure the success of the expedition. Mr. B. M. Descoings, the Institute's botanist, accompanied me, and together we were to travel over 4,000 miles through the island, including the extreme south and the far north, searching for Aloes.

From Tananarive the road to the south led through hilly country to Antsirabe through large areas given over to the cultivation of rice, the natives' staple diet. Scarcely a square yard was to be found that had not been levelled and converted into paddy fields.

In deep soils of the plateau, *A. macroclada* was repeatedly seen. This species is acaulescent, solitary, has a large rosette of leaves, and produces a simple 'bottle-brush' spike about six feet in height.

On granite, *A. acutissima* was seen repeatedly, large plants of which bear some slight resemblance to small plants of the South African *A. arborescens*.

The road continued southwards to Ambositra (pronounced 'Ambusht'). Along a branch road westward to Ambatofinandrahana, *A. conifera* was found in considerable numbers on denuded rocks, and the very decorative *A. capitata* var. *quartziticola* was seen on quartzites—as the varietal name implies.

Back to the main road, then southwards to Fianarantsoa and Ambalavao we continued, and a further thirty miles brought us to a village on foothills of the majestic Andringitra range. Aloes were recorded from along the top, but I could not reach them. (How I longed for a helicopter.)

In the flat, sandy country of the arid sun-drenched south, large numbers of the very attractive *A. vaombe* were in full flower. With six- to nine-foot simple stems, and large inflorescences of bright red flowers embellishing an otherwise drab landscape, *A. vaombe* is the Madagascan counterpart of *A. ferox* in the Cape, although it does not occur in anywhere near the same numbers.

One of the most astonishing Aloes seen in the far south was *A. suzannae*, found in dense bush in the Mandrare River valley near Amboasary—an intensely hot region with summer temperatures often reaching 110 deg. F. and more. It has a stem ten to fifteen feet high and nine to ten inches thick, while its inflorescence is a simple 'bottle-brush' spike up to ten feet high. At a distance *A. suzannae* seems to bear a slight resemblance to *A. comosa* in the Doorn River Valley north of Clanwilliam, but the leaves and flowers are in all ways very different.

In fact the flowers of *A. suzannae*—borne on pedicels over an inch long—are somewhat campanulate, with revolute segment apices, and rather resemble the flowers of some of the Lilies in outline.

In the same neighbourhood, there are masses of spiny Didierea, and almost forests of *Alluaudia procera*, a shrub-like tree with long, very slender, spike-like erect branches which seem to pierce the skies. These plants suggest relics of a prehistoric age, and one almost experiences a weird feeling of eeriness—as if expecting a dinosaur to emerge from the dense bush at any moment.

Eastern, central and south-western floras meet near Fort Dauphin, and many unusual species can be seen. One of them, *Neodypsis decaryi*, is a tall-stemmed palm with its leaves arranged in three symmetrical ranks. Another is *Ravenala madagascariensis*, of the banana family, but unlike the banana, its leaves are arranged like an open fan on a tall stem. One fascinating plant seen along the coast north of Fort Dauphin was *Nepenthes madagascariensis* which traps insects. The trap is like the spathe of an Arum Lily, with a red lid, and when once an insect ventures inside it never emerges again. This is a link with the Far East and not Africa.

The French landed at Fort Dauphin in the south-east corner of the island in 1642—ten years before van Riebeeck landed at the Cape. Near Fort Dauphin I most fortunately found *Aloe bakeri*, described by Scott Elliot as far back as 1890. It is a charming little species forming dense groups of 50 to 100 plants, and its flowers are most attractive—scarlet at base, shading through orange at the middle to yellow at the green-tipped mouth.

Cap Ste. Marie, the southernmost point of Madagascar, is an Eocene limestone bluff three hundred feet above the sea, and lies roughly due east of Pretoria. There I found numbers of a charming species, *A. millotii*, in flower.

Another remarkable species, found only on limestone slopes and cliffs near Tulear in the south-west is *A. viguieri*. This species has leaves and rosettes very closely resembling the 'Coral Aloe' of the Cape, *A. striata*, but the inflorescence is simple with a laxly flowered raceme.

On mountains of the plateau, and in the dry south, one almost invariably finds Pachypodiums on barren denuded rocks, and one wonders where the roots find any nourishment. The Pachypodiums are an astonishing group and vary from small yellow-flowered plants twelve inches in diameter and a few inches high, to branched trees ten feet high with terminal clusters of large white flowers. Some species bear large yellow flowers on very

short peduncles; in others the peduncles are a foot long. A *Pachypodium* in the south has a simple spiny stem eight to ten feet high, crowned with a tuft of leaves, reminiscent of *Pachypodium namaquanum* in the north-western Cape near the Orange River, but I saw no flowers.

Throughout the island a wide range of *Kalanchoes* was seen. A common species is *K. tubiflora*, so plentiful in South African gardens under the name of *Bryophyllum*. Of the world's total of 150 species of *Kalanchoe* more than half occur in Madagascar, Mr. Descoings told me.

In the Tzimbazaza Gardens, a specialized collection of *Kalanchoe* is displayed in bewildering variety, and some of them are positively beautiful. If South African horticulturists would cultivate some of the showy *Kalanchoes* of Madagascar, there would be a never-ending demand for them.

The few Baobabs I saw were nowhere near the size of the giants in Africa. One of them was *Adansonia za*, but none was in flower.

Returning from Tulear to Tananarive, I found numbers of another very attractive *Aloe* near Ranohira, in the Isalo range—*A. deltoideodonta* var. *brevifolia*. The leaves and rosettes of this species, too, suggest an affinity with *A. striata*, so does the branching of the inflorescence—but not the individual flowers.

Professor Millot had not returned when I arrived back in Tananarive, so I decided to see what *Aloes* were to be found along the road up to Diego Suarez in the far north.

Near Antsohihy I found numbers of the *Aloe* that produces large bulbils on the peduncle. Large tracts of low country covered by considerable numbers of *Borassus* palms were passed through, and in one place the road skirted a magnificent bamboo forest. Considerable cultivation of coconut palms was seen in the north.

Diego Suarez was reached, and on the near-by Montagne des Français my last *Aloe* was collected—*A. suarezensis*, growing on limestone faces.

I had to fly back to Tananarive and regretfully parted with a grand travelling companion. Mr. Descoings had at all time been most considerate and helpful, and I owe it to him for getting the inflorescence of *A. suzannae*, and once for climbing a dangerous rock face to get the flowers of *A. viguieri*—where I feared to try myself.

Back in Tananarive I at last met Professor Millot and the two days remaining before my plane left for home we did little else but discuss the *Aloes* and other plants

in the gardens. But many were my questions concerning other aspects of Madagascar. 'The geology of Madagascar is one of the very oldest in the whole world', the Professor told me, 'and goes back 3,000,000,000 years.' It is thought that Madagascar was separated from the mainland of Africa about the Permian period, 200,000,000–300,000,000 years ago, long before the Eocene. 'Since then the evolution of Madagascar has been quite independent of the mainland', the Professor added.

The *Aloes* of Africa and Madagascar have seemingly evolved from a common ancestral stock. While there are resemblances between a few Madagascan and African species, evolution has, it seems, taken very diverse paths, and many Madagascan species have no counterpart on the mainland.

There is nothing in Madagascar even remotely resembling such *Leptaloes* as *A. saundersiae*, *A. albida*, *A. minima* and *A. myriacantha*. The same applies to the *Leptaloes* such as *A. ecklonis*, *A. cooperi* and *A. boylei*. There is also nothing in Madagascar resembling the *Saponariae* such as *A. saponaria*, in South Africa and *A. lateritia* in East Africa. This is remarkable since the maculates grow from Cape Town to Somaliland. Against this, the African mainland has nothing like *A. capitata* with flowers opening from the top of the raceme downwards, the uppermost pedicels being longer than the lowest ones, and to *A. bulbillifera* bearing large bulbils on the peduncle. *A. haworthioides*, a very distinctive small species, is nearer in leaf characters to *A. humilis* than a *Haworthia*, but its raceme bears very small sessile flowers. Nothing like it is known in Africa.

Two species—*A. betsileensis* and *A. conifera*—bear dense racemes of sessile flowers, but the flowers are very different from those of the eastern Transvaal *A. sessiliflora* and allies.

There is nothing in Madagascar with oblique racemes of unilateral (secund) flowers like *A. globuligemma* and *A. marlothii* of the Transvaal, *A. ortholopha* of Southern Rhodesia, *A. mawii* of Nyasaland, and *A. secundiflora* of East Africa.

In *Prolongatae*, the Madagascar species *A. antandroy* appears to show a remote affinity with the South African *A. tenuior*, while *A. divaricata* may be distantly related to the East African *A. volkensii*.

Madagascar is a country about which so many know so little. It is actually the world's fourth largest island. It is 1,000 miles long, 350 miles wide at the middle, and 241,000 square miles in extent. From Tananarive down to Fort Dauphin involves 740 miles by road, and from



Dr. Reynolds admiring a plant of *Aloe macroclada* Baker.



Photos: G. W. Reynolds.

PLATE 4.

A. deltoideodonta Bak. var. *brevifolia* H. Perrier.

Tananarive up to Diego Suarez is not less than 790 miles.

Apart from being a never-ending source of delight to the botanist, with new discoveries on almost every mountain range (varying from limestones and sandstones to quartzites and granites), it is filled with interest for students in other fields. There are the lemurs—most beautiful creatures—non-poisonous snakes (I stroked the back of one and it scarcely moved), fossil remains of Dinosaurs, of the largest bird the world has ever known, *Aepyornis maximus*, eleven feet high, and countless other treasures besides.

There are some fascinating tongue-twisting Malgache

names such as Ankitsaralaninaomby near Diego Suarez, while the first Malgache king's name was Mahitsielajan-jaka Andrianampoinimerina.

From the forests of the east coast to the mountain ranges extending throughout the length of the island, and from the cool central plateau to the hot arid south, Madagascar is an intriguing land of startling contrasts, absorbing interests, and infinite variety.

ACKNOWLEDGMENT

I am indebted to the South African Council for Scientific and Industrial Research for a travelling grant which enabled me to fly to Madagascar to investigate the Aloes.

Settlers' Park: Port Elizabeth's Nature Reserve in the Baakens River Valley

By F. R. LONG

WHERE IS IT?

THERE lies between the South End and the Central Hill Districts of Port Elizabeth, between the boundary of the municipality of Walmer and St. George's Park Lands, a valley known as the Baakens River Valley, stretching from the east at a point near the Tramway Company bus sheds to a point below the causeway on the Target Kloof Road leading to Walmer. Within this area there are 211 acres of wooded slopes, lofty krantzes, grassy meadows and river pools and beds. This area has been set aside for all time as a nature reserve by the joint municipalities of Port Elizabeth and Walmer, the former setting aside 157 acres and the latter 64 acres. Within this area an attempt is being made to move back 150 years, to re-establish wild life as it existed before civilized man appeared to upset the balance of nature.

WHAT IS A NATURE RESERVE?

A nature reserve is an undeveloped area set aside so that nature may take its course. In other words an area where the fauna and flora may develop unaided and without interference by man, so that unspoilt natural beauty may be preserved for the coming generation to see and understand what wild life really is.

It naturally follows that such an area should be set aside before it has become spoilt by man but in this respect the present effort was made a little late. Through unrestricted grazing and the cutting of firewood, the Settlers' Park area had become denuded of much of its flora and through unrestricted hunting, shooting and poaching all the larger forms of animal life have long since disappeared. However, a very serious attempt is now being made to re-establish the wild plants that should have grown there, the heaths, ground orchids, sugar bush, keurboom, yellowwoods. In regard to the putting back of animals, the area would make a restricted home for the species of wild buck found in the Eastern Province, namely, the duiker, koodoo, stembok, bluebok and oribi. In regard to bird life what better

haunt with its running stream and water pools could be found for the green lorie, the blue crane, the crested crane, reedhen, moorhen, rivercoot, partridge, quail, woodpecker, hoopoe, hammerkop, kingfishers, red and yellow bishops, sunbirds, wax and ruddy wax-bills?

WHAT USEFUL PURPOSE CAN A RESERVE FULFIL?

From a scientific aspect the establishment of a reserve preserves living plant and animal life which would otherwise rapidly become extinct. From an artistic point of view a reserve will maintain the natural scenic beauty which cannot be replaced when once broken down by urban life. In a utilitarian sense, a nature reserve presents to the visitor a place where the much advertised floral beauties of the Cape may be seen within comfortable distance of boat, rail or road.

EXPECTATIONS OF THE OVERSEAS VISITOR

The average overseas visitor has most probably been lured to sunny South Africa for a holiday tour by glowing accounts in the press of the wild life of the country. Wild life certainly abounds in South Africa—if one has time to look for it. Lucky is the traveller if he arrives in Cape Town in August, September or October for he will certainly see a wealth of wild flowers almost everywhere. But what of the other months of the year? Unless he searches diligently he will be disappointed. Now the average visitor expects to find a show or a wealth of beauty wherever he goes—wild life in all its aspects at all seasons of the year without searching for it. Will he find it? He certainly will not unless special reserves are laid aside to provide it. Civilization, or perhaps man's depredations would be a better term, is advancing too rapidly to allow of easily accessible natural beauty spots.

In Baakens River Nature Reserve we have 211 acres of unspoilt natural scenery within a distance of one mile or about ten minutes by motor-car from the harbour landing-place. It is the ambition of the municipalities concerned to have growing there all the beauties of the

wild life of the Eastern Province so that the tourist from overseas coming ashore to see the sights, and the visitor from up-country can observe within easy access all the glories of local wild life. Visiting tourists are multiplying by their thousands monthly. These now step ashore into the waiting motor-car, eager to spend a day or half a day touring the city. What have we to offer them? The Snake Park—the best-known attraction in South Africa, Fort Frederick the first building to be erected in the Eastern Province, Humewood for bathing and beautiful valleys, several excellent parks, factories and several drives, but above all a *nature park*.

A DESCRIPTION OF THE RESERVE

Entering from the eastern end one touches the river a few hundred yards above tidal influence and here several large pools are well filled with the beautiful Cape Blue Nymphaea or Water Lily (*N. stellata*), to the left is a high krantz well clothed in Aloes, *A. africana*, *A. supralaevis* and *A. striata*. The last named, the 'Coral Aloe' is represented by a few survivors on a steep rock-face. To the right is a sunny grassy slope, recently planted with *Watsonias* and *Cyrtanthus*.

Adjoining this is a fine slope covered in indigenous bush where a few epiphytic orchids can be seen. Then come two small koppies, veritable ready-made rock gardens; here many local succulents have been planted; also masses of the glorious *Cyrtanthus obliquus*, *Veltheimia viridifolia* and *Antholyza* spp.

In the river-bed hereabouts several hundreds of Yellowwoods (*Podocarpus* spp.) have been planted in the damp ground. Who knows but these may grow into the giants one is accustomed to see in the Knysna forests even if it should take 500 years to accomplish such growth! Other trees recently planted are Keurboom, Camdeboo Stinkwood, Kaffirboom, Kaffir plum, Essenhout, Klapperbosch, Cape Chestnut and Cape Willow.

In the centre of the reserve on a commanding site overlooking the river several local species of Protea and Pincushion (*Leucospermum*) have been planted with a considerable amount of difficulty.

During the pre-war years no less than 23,000 local plants were planted in the reserve. Work in the near future will no doubt be taken up by the planting of Eastern Province species of Erica, Watsonia, Homoglossum, Herschellia, Satyrium, Disa and other ground orchids, *Cyrtanthus*, Nerine, Gladiolus, Freesia, Chasmanthe. The area round about the district of Port Elizabeth is particularly rich in succulent plants such as Aloes, Haworthias, Crassulas, Gasterias, Euphorbias,

Stapelias, Piaranthus, Huernias, Duvalias, etc., all of which must be established.

BEAUTIFUL PICNIC SPOTS

Towards the western end, the beauty of the wild krantzes, the river pools and forest growth would take a better pen than the writer's to describe adequately. Many of our local citizens are familiar with Lovers' Rock (they have missed much if they were not acquainted with this delectable spot in their early days). To sit here at sunset (some say by moonlight) is a wonderful experience looking away over to the Witteklip and Cockscorn Mountains. A finer site within the city would be hard to find.

Below 'Lovers' Rock', a sheer drop of some 200 feet, are the most delightful picnic spots imaginable. To sit here by the stream on a quiet day one may easily imagine oneself to be many miles from a town and far from the maddening crowd. One of the chief drawbacks to this spot is that it is too near the town and too accessible; folks have become accustomed to go miles in the car to look for such a place of natural beauty. The spots at their very doorsteps are neglected so to speak.

NATURE RESERVES ELSEWHERE

The Union and Provincial Governments are now taking an active interest in the grand work of establishing nature reserves. To mention a few specially set aside for the preservation of animals—Kruger National Park, Kalahari for gemsbok, Bredasdorp for bontebok, Cradock for mountain zebra, Addo for elephants, Table Mountain for general fauna and flora.

The Government through the Department of Forestry has created vast nature reserves, as much forest land and unplanted crown lands coming under the jurisdiction of this department have been declared nature reserves. The protection of animal and plant life is strictly enforced in these areas and thus many rare species have been given a new lease of existence.

Many municipalities and public bodies have set aside smaller areas as nature reserves. To mention a few: Bethlehem, O.F.S., 100 morgen; Caledon, 200 morgen rich in Cape heaths; Cape Town, several areas; Ceres, Clanwilliam, Darling, East London, French Hoek, Graaff-Reinet, Grahamstown, Malmesbury, Montagu, Paarl, Queenstown, Swellendam, Tulbagh, Wellington, Worcester—and now Port Elizabeth.

It is a well-known fact that many wild species of animals and plants are localized in small areas and are never found outside these areas in a wild condition. To

destroy these areas therefore through urban or agricultural development means that these localized species will disappear never to return. To quote a classic example, the 'Silver Leaf Tree' was only found in a small area adjoining the Kirstenbosch Botanical Gardens and Hout Bay Nek and this is the only habitat throughout the world. Had this area not been protected, this beautiful tree would have disappeared completely. By the formation of the reserve this calamity has been avoided.

PLANTS PECULIAR TO PORT ELIZABETH

There is no parallel example in the district of Port Elizabeth to that of the 'Silver Tree' on Table Mountain. We have, however, several rare localized plants, for instance the 'Giant Rice Flower Aloe' (*Gasteria croucheri*) which grows along the sandy shores towards Skoenmakerskop, the 'Wax Creeper' or 'Waxie' (*Microlooma tenuifolium*), the thorny Cycad or 'Kaffir Bread Tree' (*Encephalartos horridus*) and the flat 'Elephant's Foot' (*Testudinaria sylvatica*). All these species are in danger of becoming extinct because of their rarity and because the areas in which they are still found are so limited and small in acreage. Baakens River Valley will provide a sanctuary for these species.

WHAT OF THE FUTURE?

To bring all these ideas to a head for the full development of this grand piece of urban country and to transform it into the Kirstenbosch of the Eastern Province, the municipalities of the City of Port Elizabeth and of Walmer have in mind the immediate application to the Provincial Administration for the declaration of Settlers' Park as a nature reserve for all time under the appropriate Provincial Ordinance. Further, the local councils have invited interested bodies to appoint delegates to form an advisory committee to assist in ideas and ways and means for development work.

Among the local bodies to be so represented are The Wild Life Protection Society (S.A.) E.P. Branch, the E.P. Wild Flower Society, The Tree Society, the Ornithological Society of S.A., the Museum Board and others.

It would appear therefore that all is now set for the early execution of a detailed programme.

The City of Port Elizabeth is indeed fortunate in having such a lovely, almost unspoilt piece of nature right in the heart of the City. No other large town in the Union is so well off.



Photograph by courtesy of 'Eastern Province Herald'.

PLATE 5

Baakens River in the centre of Settlers' Park.

Plant Names and Their Origin

By MARGARET R. LEVYNS

THE need for naming plants is so obvious that it requires no explanation. However it is not quite obvious how plants came to be given the particular names that they have to-day. People frequently object to the Latin names attached to familiar plants and ask why botanists cannot be content with a nice popular name which any one can pronounce. It must be admitted that popular names are frequently appropriate and attractive but there are many drawbacks to their use. For example a name which is attached to one plant in a particular district may be used for a different plant elsewhere. In the Tulbagh area *kalossie* is confined to various species of *Ixia* but in the Bredasdorp region the name has a much wider application and may include other members of the Iridaceae, including *Watsonias*. A familiar case in Great Britain is the *bluebell*. In England the plant bearing this name is a monocotyledon allied to the Hyacinth and growing in masses in woods in early spring. In Scotland, however, the name *bluebell* is attached to a very different plant, known in England as the *harebell*. The Scottish *bluebell* belongs to the dicotyledonous family Campanulaceae. A second point is that plants are introduced into gardens in many parts of the world and a popular name with considerable appeal in one country may have none at all in another. Plants have no national boundaries and it is therefore important that the names they are given should be usable anywhere.

To-day an international committee of botanists is in existence for dealing with problems of plant names, but before their work can be appreciated we must go back in history and see how the present system has evolved. The Greeks and Romans knew the plants of their countries, especially those with medicinal or food value, and had names for them, some of which are still used to-day. As civilization spread westwards the inhabitants of the newly settled lands assumed that their plants were the same as those described in the classics and proceeded to apply Greek and Latin names on that unwarranted assumption. Before long confusion prevailed and we have to thank the sixteenth-century herbalists for calling a halt to this riot of speculation. They studied the plants around them and their descriptions and the woodcuts which accompanied them, and laid the foundation of our present-day knowledge. As time went on more

and more plants became known and the records became unwieldy. Soon it became necessary to group plants for purpose of reference, such reference being a necessity as the physicians of those days depended on plants for their remedies. Thus arose the early systems of classification. These systems do not concern us here but it is important to remember that anyone who wanted to refer to a particular plant was forced to give a lengthy description of it for there was no short form of reference. A very great advance was made in the year 1753 when the great Swede Linnaeus published his famous *Species Plantarum*. There for the first time in a comprehensive work, each plant was clearly indicated by two names. The first name is the genus and the second the species. For example if we refer to the genus *Protea* we bring to mind a group of plants which have certain features in common. They have a head of not very conspicuous flowers surrounded by a showy cup of bracts. Within the genus *Protea* there are many different species and these are indicated by adding a specific name after the generic. Thus *Protea mellifera* is a particular *Protea* with a deep cup of shiny, sticky bracts, either pink or white. *Protea marginata* has a shape not very different from that of *Protea mellifera* but with downy bracts, hairy at the tips. *Protea cynaroides* has a much larger head with silvery pink bracts which spread open to form a shallow bowl. By combining two names in this way we can refer quickly and accurately to any of the many species of *Protea* known to us.

Though Linnaeus founded the modern scientific study of plant classification and naming, the troubles attending the naming of plants was by no means at an end. Beyond the acceptance of the binomial system, there were no rules governing the naming of plants and with the passage of years many difficulties arose. For example a botanist of established reputation might decide that a name given to a plant by someone else was unsuitable. He would then proceed to change it. If his reputation were sufficiently great then his lead was often followed, but not always. Soon chaos as great as that of pre-Linnaean times threatened the botanical world and it was to draw up rules for naming plants that the first botanical congress was organized in Paris in 1867 with Alphonse de Candolle as its acknowledged leader. Rules were drawn up and for a time all was well. However,

like all rules, they were not foolproof and soon trouble began again. It was brought to a head in 1891 when Otto Kuntze published a monumental work in which he applied the rules, as interpreted by himself, so indiscriminately that he changed the names of about 30,000 plants. The crisis precipitated by this publication eventually led to the establishment of an international committee of botanists to act as arbitrators in disputes on nomenclature. In addition to this, international congresses are held at frequent intervals when the more thorny problems are discussed. In the course of years an international code of plant nomenclature has been established. The most recent edition of the code was published in 1952. To-day any botanist who publishes a new species has to follow the rules laid down in the code. This means that before recognition, a new species has to be described and published together with a diagnosis in Latin. It is assumed that Latin, being the nearest approach to an international language, will be understood by botanists of all nationalities. Further, a dried specimen termed the type must be preserved and housed in some place where it can be consulted. In cases of dispute the evidence provided by the type has precedence over all other kinds. In order that there may be no ambiguity with regard to the application of plant names, the name of the person who has described it is printed after the generic and specific names. Among the older botanists it was common practice to abbreviate the names. Thus L. stands for Linnaeus, DC. for de Candolle and so on. To-day unless a person's name is very long, the whole name is used.

At the present time new species which are not published in accordance with the Code are invalid, but the problem of species which were established before the Code was recognized still remains. For the sake of uniformity these too have to obey the Code and this has led to many changes of name. The first legitimate name given to a plant has precedence over later ones, even if the latter has come into general use. In the case of genera the International Committee has the power to conserve the use of a younger name when a good case has been made out for its preservation. In the case of species, however, this is not so. At all international congresses *nomina specifica conservanda* appears as an item on the agenda but so far no one has persuaded the congress as a whole that the conservation of specific names is desirable.

How the Code works is best illustrated by some examples. In 1753 Linnaeus named a well-known Cape plant *Antholyza ringens*. About fifty years later Ker-

Gawler transferred it to a new genus he had established, *Babiana*, although in its flower structure it had little to recommend it as a *Babiana*, and there it stayed until 1932. In the meantime a number of widely differing genera had been assigned to the Linnaean genus *Antholyza* by other botanists and the curious situation arose of a genus from which the type species was excluded. Acting under the new rules, the late Dr. N. E. Brown restored *Antholyza ringens* to its rightful name and established new genera for the plants which now had to be excluded from *Antholyza*.

Another case is that of *Stoebe cinerea* which was based on *Seriphium cinereum* of Linnaeus. When the generic name *Stoebe* was adopted many species were transferred to it from *Seriphium*, including *Seriphium cinereum*. The rule governing such a transfer is quite definite; the original specific name must be retained. In this case a mistake was made and another species, the well-known slangbos, was given the name of *Stoebe cinerea*. The mistake became apparent when a visit to the Linnaean Herbarium in Burlington House, Piccadilly, showed that the Linnaean type was not the slangbos but a much less widespread species. The slangbos therefore had to give up the epithet *cinerea* and take the next one available, *plumosa*, while *cinerea* was restored to its rightful owner.

A case which will show the care with which the Code must be applied and complications which arise is illustrated by the case of the belladonna lily. The name given to it by Linnaeus was *Amaryllis belladonna* and until 1938 the name was not challenged. In that year Uphof in America claimed that the name really belonged to an American plant hitherto known as *Hippeastrum equestre*, and that the Cape plant had to give up the name and assume that of *Callicore rosea*. The challenge was taken up by a number of botanists and a long and sometimes acrimonious dispute ensued. It must be remembered that the type specimen is the most important piece of evidence when the correct name of a plant is in question. If the type has disappeared, then other evidence such as references to literature, figures, etc., may be used. Uphof based his claim on the undisputed fact that the references accompanying the Linnaean description apply to the American *Hippeastrum*. However, in this case the subsidiary evidence is not required as the type specimen of Linnaeus is preserved in the Cliffton Herbarium in the British Museum. This type is beyond any doubt our South African Belladonna Lily. The Americans (for Uphof received the support of some other American botanists) were loath to give up without a

struggle and persisted in their claim, so in 1954 the case was discussed at the International Congress in Paris. The verdict was in favour of the South African plant. It speaks well for the international spirit of these congresses that one of the two botanists who drew up the report in favour of South Africa was an American.

Naming plants is not always easy, especially in the case of the bigger genera. The generic name which is always a noun, should be applicable to all the species belonging to the genus. The specific name is either an adjective in which case it agrees with the gender of the noun, or it may be a noun in the genitive. Names of people commemorated are usually treated in the latter way and the ending used denotes the sex of the person. Thus *Erica salteri* was named in honour of Captain T. M. Salter and *Erepsia pageae* commemorates Miss Mary Page, a botanical artist.

Tracing the origin of generic names is often a fascinating pastime. When Linnaeus and his fellow workers embarked on the task of providing plants with names, they had a wide field on which to draw. Names used in ancient times were frequently adopted, for example, the Greek names *Thalictrum*, *Anemone*, *Erica*, *Cinnamomum*, etc., and the Latin names *Rosa*, *Rubus*, *Viola*, *Avena*, *Quercus*, etc., were similarly employed. Aloe, a large genus, mostly African though occurring also in south-eastern Asia, was derived from an old Arabic name *alloe*. Ananas, the generic name of the pineapple, is merely a modification of its original South American name. Sometimes the ancient name has been transferred to another plant in modern times. *Rhododendron* to-day belongs to an Ericaceae genus but in olden times it belonged to the genus called *Nerium*, at the present time the oleander of gardens. However, as the Botanical Code states that accepted names start with the publication of the *Species Plantarum* in 1753, such changes are merely of historical interest.

Mythology was a boon to the eighteenth- and early nineteenth-century botanists who frequently made use of this source of names for plants. *Protea* was derived from *Proteus*, a sea-god who was supposed to be able to change his form at will. This seemed a good name for a genus so prone to change of form. *Nymphaea* honoured the nymphs. *Nerine* was taken from Greek mythology. The scientific name of the best-known species has an interesting history. Linnaeus founded it as *Amaryllis sarniensis* indicating that it grew on Guernsey, one of the Channel Islands. The story goes that a Dutch or English ship on its way home from the east was wrecked on the island and the bulbs that were washed ashore from it eventually rooted and flowered. For many years

it was supposed to have come from Japan and its presence there was vouched for by the distinguished explorer and botanist Thunberg. However, like many other stories of plant origins, the story of its Japanese homeland proved to be false. The plant now known as *Nerine sarniensis*, is known to be confined to South Africa. It is interesting to know that it was cultivated at Wimbledon as early as 1659. It is not obvious why Swartz chose to honour a satyr in his new genus *Satyrium*, but at any rate the derivation is indisputable. This is far from being the case of the genus *Disa* which was founded on the well-known red *disa* of the Cape mountains. Bergius, the founder, gave no reason for his choice. Sir William Hooker recorded a suggestion made by Sir James Smith that it came from *Dis*, one of the supreme gods. Others have thought that it might be connected with the Latin *dis* (*dives*), rich, alluding to the beauty of the flower. It is to be regretted that this beautiful orchid, which usually bears several flowers on its flower stalk, was first described from what must have been a poor specimen and received the name *Disa uniflora*. A later name, *Disa grandiflora*, is much more apt but unfortunately according to the rules of nomenclature we have no choice in the matter and the first though unsuitable name, must be retained.

People, distinguished or otherwise, are often commemorated in plant names. The South African flora provides many examples. Thunberg has two genera named in his honour, *Thunbergia* and *Thunbergiella*. Harvey, to whom South Africa owes much, is commemorated in the beautiful parasitic genus *Harveya*. *Macowania*, *Bolusia* and *Bolusanthus*, *Marlothia*, *Marlothiella* and *Marlothistella*, *Pearsonia*, *Pillansia* and others have been established in remembrance of men whose contribution to science makes the honour well deserved. Sometimes the names belonged to men distinguished in other walks of life such as *Tulbaghia* in honour of Tulbagh, a celebrated governor of the Cape, *Galenia* after Galen, a distinguished early medical writer, *Lobelia* after L'Obel, an early herbalist, and *Cliffortia* after Clifford, a patron of Linnaeus and a true lover of plants. Early travellers in South Africa have their names preserved for us in the genera *Massonia*, *Lichtensteinia*, *Burchellia*, and *Sparmannia*. Similarly men who had charge of the East India Company's garden at Cape Town have been perpetuated in the genera *Hartogia*, *Oldenlandia* and *Augea*. Occasionally the honour was misplaced as in the case of *Grubbia* named after Michael Grubb, a China merchant who, while stopping at the Cape on his way home to Sweden, obtained a parcel of dried plants from Auge. These plants were described

in a volume on Cape plants by Bergius who dedicated his work to Michael Grubb, *Viro Generoso atque Nobilissimo Domino* and never mentioned J. A. Auge, the person who collected the plants. In other cases the founder of the name wanted to honour a friend or colleague. In the endemic family Bruniaceae where some connection between the names of the people commemorated and South Africa might be expected, none is found. *Brunia* received its name in honour of Dr. Alexander Brown, a surgeon in the East Indies. *Berzelia* commemorates the distinguished Swedish chemist Berzelius. *Audouinia* received its name from J. V. Audouin, a French entomologist, and *Staavia* from Martin Staaf, a correspondent of Linnaeus.

In some cases names of genera based on people's names are euphonious and although they honour people in no way connected with South Africa, the fact that they were established long ago renders them acceptable. Into this category falls *Lachenalia* dedicated to Warnerus de la Chenal, an eminent Swiss botanist of his day. For some names, however, no excuse can be found. A clumsy name like *Zaluzianskya*, commemorating a sixteenth-century Polish physician, is not a happy choice. Neither is *Zantedeschia*, a name given in honour of Francesco Zantedeschia who wrote about Italian plants, appropriate for a genus of which the best-known species is our common arum lily.

Some of the most interesting generic names are those made up from Greek and Latin sources to suggest some attribute of the plants. In the family Rutaceae where a strong scent is characteristic, this is often reflected in the names. Thus *Diosma* is compounded from Greek words meaning divine scent, *Barosma* from words meaning heavy scent and *Agathosma* meaning good scent. The small Cape genus *Agathelpis* had little of note in appearance or properties to help its founder in choosing a name, so he got round the difficulty by combining two Greek words meaning Good Hope. The genus *Nasturtium*, to which the familiar water-cress belongs, has an amusing derivation from the Latin words *nasus tortus* meaning twisted nose, referring to the facial contortions produced by its pungent taste. The curious beak-like fruits of the family Geraniaceae inspired authors to choose names of birds possessing similar beaks. Thus *Geranium* is derived from the Greek *geranos* a crane, *Pelargonium* from *pelargos* a stork and *Erodium* from *erodios* a heron. However, names of birds with suitable beaks seem to have been exhausted and we find *Monsonia*, another common Geraniaceous genus, named in honour of Lady Ann Monson, a correspondent of Linnaeus. The name *Antholyza* has a picturesque

derivation from the Greek word *anthos* flower and *lyssa* rage, in reference to the wide open lips of the flower, suggesting an enraged animal ready to bite.

Anagrams are not uncommon. The South African genus *Ifloga*, a small inconspicuous member of the family Compositae, is derived in this way from the related northern genus *Filago*. *Podranea*, the generic names of the Zimbabwe and Port St. Johns Creepers, was similarly made up from that of another Bignoniaceous genus *Pandorea*.

Specific names do not offer the same difficulties as generic for a species is the unit of classification and is therefore more uniform than a genus. It is usually possible to find a suitable adjective in Latin or Greek to fit it. Names of people may be used but bearing in mind the many unfortunate epithets that had been attached to plants in the past, the Code of Botanical Nomenclature contains recommendations that in forming new names from names of people, they should belong to persons well known and not difficult to pronounce.

In Linnaeus' day and for some years afterwards botanists were engaged in the enormous task of providing every plant with its two distinguishing names. Finding suitable names sometimes taxed the ingenuity of the authors and they frequently saved themselves trouble by deriving the specific name from the country or origin. Thus in South Africa we find the epithets *africanus* and *capensis* in constant use as for example in *Eriocephalus africanus*, *Corymbium africanus* and *Retzia capensis*, just to mention three of them. Sometimes, however, in the old records wrong localities had been given and we find names such as *Nerine sarniensis*, *Albuca canadensis*, *Aloe succotrina* and *Ficinia indica*, all South African. Apart from their names they have no real connection with the places commemorated.

A difficulty that always confronts the maker of new names is that if ever an epithet has been used before in a particular genus then, even if it be no longer used, it is not permissible to use it again. Fortunately the name can always be checked, for in that monumental publication, the *Index Kewensis*, the names of all species are recorded. Supplements are published from time to time so there is no excuse for using names already in existence.

It will be clear that to-day naming plants is not the light-hearted affair that it once was. International rules and that bugbear of many botanists, the Latin diagnosis, all make the publishing of a new species something of an undertaking. However, the older workers are always willing to help the beginners and co-operation among botanists in almost all countries is a heartening sign in these days of political strife.

An English Collection of South African Succulent Plants

By W. F. HIGGINS

MEMBERS of the Botanical Society of South Africa may be interested to hear of a collection of South African succulent plants that has been built up in England over a period of more than twenty-five years. We are situated at Croydon in the county of Surrey, some ten miles due south of London; the climate and conditions are fairly favourable for the growth of these plants but, of course, they must be kept in heated greenhouses during the winter. Many of the larger species enjoy being out in the open during the summer months and we normally plant out a rock border with succulents each year. The plants, however, have to be lifted and repotted in the autumn before the frosts come.

Our collection, which comprises over 1,200 species, is reasonably representative of the South African succulent flora but certain groups have a greater appeal to us and, in consequence, somewhat outnumber the other groups. Thus my wife, who is a trained botanist, is specially interested in the genus *Crassula* and we have some 150 to 200 species. The identity, however, of many of these remain to be determined and this will afford a fascinating problem for many years to come.

My own particular interest is in the family Mesembryanthemaceae of which we now have some 600 to 700 species representative of nearly 100 genera. Our collection of Conophytums includes plants which we have had for over twenty years and these have made large specimens; more recent additions bring the total up to nearly 200 species, many of which are propagations from type plants. The Conophytums flower extremely well and we rarely lose a plant. This genus is, in general, given a complete rest from January to about June or July. Water is completely withheld until the new growths break through the dried skin of the previous year's growth. The pots are then soaked individually so that the whole of the soil is wetted; from then on during the growing period, the plants are watered freely according to the weather, gradually reducing the amount and frequency as the resting period approaches. The same principle is applied to all the other extreme succulent types but varying the duration and amount of watering according to the needs of the plants. For

example, a small plant of *Dactyloopsis digitata* has been kept in a healthy condition since 1948; this plant is only watered for about two months in the year and that in the middle of our winter when the temperature in the greenhouse often drops to 40 deg. F. The general experience with this plant seems to be that it will not survive in cultivation for more than a year or so.

Our collection is also rich in Lithops (of which we have nearly all the named species), in *Glottiphyllum*, *Faucaria*, *Stomatium*, *Cheiridopsis*, *Gibbaeum*, *Pleiospilos*, *Argyroderma* and *Ophthalmophyllum*. The shrubby genera are less well represented but, where it has been possible, at least one species of each has been acquired. Several of the annuals find a place in the collection but these demand replacement from seed each year and, unfortunately, this is not always possible.

Many of the monotypic genera are also included. During the past two years the collection has been enriched by the inclusion of several Conophyllums, chiefly raised from seed, but some from cuttings. It is often said that these plants do not grow from cuttings but my experience with the few that I have had has been entirely successful, but the cuttings must be taken early in the growing season and fairly close to the new growth. They are rooted quite quickly in a moist mixture of sharp sand and peat with bottom heat. They will also root in a similar mixture with the addition of vermiculite, but personally I do not favour the use of vermiculite alone, as the roots, although freely produced, seem too soft to stand being repotted successfully. These remarks about cuttings are of general application and do not only apply to difficult subjects like Conophyllums. Hormone preparations to induce free rooting have been tried but our experience has been too limited to say with certainty whether such materials have markedly beneficial effects.

Aloes are also a favourite genus of ours; unfortunately the size of these plants restricts the number we can grow. Our collection of about 50 species includes a number of attractive plants such as *A. haemanthifolia*, *A. jucunda*, *A. plicatilis*, *A. framesii*, *A. concinna*, *A. pearsonii*, etc. Most of these Aloes are grown in pots and their size can be regulated to some extent by the size of the pot, but a

few are grown in a bed in the greenhouse where they have free root run and, in consequence, they grow larger and flower freely. At the moment of writing (February) several are in flower, each bearing a number of spikes. *A. ciliaris* grew so freely that last year it had to be severely reduced and so has not flowered this winter.

Among other members of the same family we have a collection of about 60 Haworthias, Astrolobas, Gasterias and Bulbines.

Our collection of Cotyledons includes old plants of *C. wallichii* and *C. paniculata* as well as some of the very attractive small species such as *C. pygmaea*, *C. racemosa* and *C. sinus-alexandri*. *C. ladysmithensis*, with its woolly leaves, always attracts the attention of visitors and with us has the advantage of flowering freely and regularly late every autumn. Closely allied to the Cotyledons are the Adromischus of which we have about 50 species; many of these are unfortunately unnamed and this group is one which would repay intensive study. As with the Crassulas, we feel that many of the species are polymorphic and to resolve the taxonomy further field studies are essential.

Our Composites include some 60 species of Senecio, Kleinia and Othonna. The larger Senecios do not flower freely under pot culture and in this connection an interesting experiment may be cited. A very common plant in collections of succulents is one which has been known very generally as 'Senecio spicata', a name which has no botanical authority. This rarely flowers under normal cultivation but one year we planted a large specimen out for the summer and it flowered freely out of doors; the identity of the plant could then be established and it was found to be *Senecio cylindricus*. Among the Senecios that flower regularly with us are *S. articulatus*, *S. macroglossus* (the Cape Ivy), *S. junceus*, *S. stapelii-*

formis and *S. gregori*. We find the Othonnas most attractive; they are winter-flowering and such species as *O. quercifolia*, *O. euphorbioides*, *O. pillansii* can be relied upon to flower every December.

Our collection of South African Euphorbias numbering some 70 species is another group which greatly attracts us and especially our visitors. Many of these plants are among our earliest acquisitions and have now reached a large size. Among the species which may receive special mention are *E. dregeana*, *E. gorgonis*, *E. hamata*, *E. horrida*, *E. micracantha*, *E. polycephala*, *E. pulvinata* and a very large, heavily spined plant of *E. stellae-spina*. *Euphorbia mauritanica* planted out in a bed in the greenhouse grows like a weed and has to be cut back at frequent intervals. Nearly all the Euphorbias flower freely and, although not showy, in a floral sense, the flowers can be very attractive and interesting.

The only group of South African succulents with which we do not achieve much success are the Stapeliads and, although we have examples of many of the genera, we find them short-lived under our conditions. We doubt whether they take kindly to pot culture.

So far mention has only been made of the large groups of succulent plants but our collection also includes representatives of a number of other genera such as Adenia, Anacampseros, Bowicia, Ceropogia, Cissus, Fockea, Kalanchoe, Pachypodium, Pelargonium, Raphionacme, Sarcostemma and Testudinaria.

The building up and maintaining of this collection of plants from the opposite end of the world has proved a most fascinating hobby and many other people in this country have found it equally absorbing. Close observation of the plants under one's care leads to an understanding of their needs and the reward is the possession of plants which grow happily under conditions far removed from their natural habitats.

The Behaviour of some South African Proteaceae in New Zealand

By W. R. STEVENS

(*Bastia Hill, Wanganui, New Zealand*)

MY interest in South African plants really dates back about twelve years when we shifted our Iris nursery to Wanganui. As a large part of this place is hillside facing the sun, I decided to plant Proteas on a good deal of it. The first year we put out 500 plants and the second year another 500. At the time, I was only able to get such species as *P. mellifera*, *P. pulchella*, *P. longiflora*, *P. susannae* and *P. mundii* in quantity. Since then, we have added a good planting of *P. neriifolia*, with odd plants of *P. longifolia*, *P. calcephala*, *P. lanceolata*, *P. scolymocephala*, *P. barbiger* and *P. grandiceps*.

A word about our soil and climate. The hillside has quite a rich soil about eight inches deep, overlying a very deep pug clay. Growth was quite rapid and in three years we started cutting the flowers for market. As I write, it is the beginning of July, and we are cutting about 800 blooms per week. Cutting starts about the end of April and goes on until the end of September. A few species are complete failures, and refuse to grow at all. First among these is *P. cynaroides*. I have tried it in several aspects but there is no doubt it requires a deep loose soil to flourish. Other species which are proving difficult under our conditions are *P. marlothii*, *P. pityphylla* and *P. amplexicaulis*. In lighter soils, I have seen these species growing well.

At the time we planted the first Proteas, we also planted a few specimens of various Leucadendrons and Leucospermums. These did so well that we grew several hundred each of *Leucadendron adscendens*, *L. salignum*, *L. decorum* and *L. strictum*. Most of them were raised from cuttings, but in some cases, we raised them from seed. This has meant cutting out some of the female *L. salignum*, when they have reached flowering age. In addition, we planted small quantities of *L. grandiflorum* and *L.*

venosum. These are doing well and flowering. The Leucospermums were also planted in quantity—several hundred each of *L. bolusii*, *L. nutans*, and *L. tottum*. These have all reached cutting age and are proving very satisfactory.

L. lineare has a nasty habit of dying out after a few years but whether this is due to soil conditions or cutting the flowers, I am as yet unable to determine. *L. album* also does well but is not so showy. *L. reflexum* is definitely not for this soil—it requires the same conditions as *Protea cynaroides*. In lighter soils, it makes very rapid growth and in two or three years, can reach ten feet in height.

I am addressing these notes principally to South Africans so that they may know there is no danger of at least some of their species becoming extinct. For instance, *Serruria florida* does well here and sets seed freely. I have only about thirty plants at present, but will certainly plant more. This species requires rather sharp drainage, and we add plenty of sand and loose metal to the hole before planting.

If I could be allowed one criticism of the South African preservation policy, it is that they are rather loath to send out of their country seeds of plants which are becoming rare. To a certain extent, this is understandable but in view of the fact that we in New Zealand are able to grow South African plants so successfully, I would suggest that some endeavour be made to have the rarer species established here. This is purely a safety measure from which stock could be drawn if necessary.

If readers are interested, I would be only too pleased to write some further notes on the behaviour of various Erica species of which we grow large quantities for cut flowers.

THE BOTANICAL SOCIETY OF SOUTH AFRICA

ANNUAL REPORT FOR THE YEAR ENDED 31 DECEMBER 1955

YOUR Council has pleasure in presenting the Forty-second Annual Report of this Society for the year ended 31 December 1955.

MEMBERSHIP. New Members enrolled during the year totalled 350. Resignations and deaths recorded were 79, and 151 members who were two years overdue with their subscriptions were struck off the membership roll. Net gain in membership was 120. Total membership of the Society now stands at 2,666 and includes 180 Life Members.

FINANCIAL. Subscriptions received amounted to £2,923 11s. 6d. which includes £235 in respect of new Life Members enrolled. A sum of £46 9s. 6d. was received in donations. Interest on investments amounted to £142 5s. 3d. making a total of £3,112 6s. 3d. Expenditure was £988 13s. 0d. The balance of £2,123 13s. 3d. forms the Society's Grant to the Trustees of the National Botanic Gardens for 1955. It is regretted that owing to the failure of many members to pay their subscriptions during the year, the Grant to the Trustees is not larger. A further sum of £7 10s. 0d. was received during the year in respect of the Doctor Bernard Price Bequest. This was placed on Fixed Deposit. Financial assets of the Society as at 31 December 1955 stand at £5,059 16s. 10d. as detailed on the Balance Sheet.

NOMINATION OF REPRESENTATIVES ON THE BOARD OF TRUSTEES OF THE NATIONAL BOTANIC GARDENS. In respect of a request received from the Hon. the Minister of Education, Arts and Science for the appointment on the Board of Trustees of the National Botanic Gardens, the Council of the Society nominated Mr. W. Duncan Baxter and Mr. D. R. D'Ewes, with Mr. M. Clough and Mr. J. S. Linley to act as alternates. These appointments are for a period of three years to 31 August 1958.

'WILD FLOWERS OF THE CAPE OF GOOD HOPE.' Sales of this book continued steadily throughout the year. The amount standing to the credit of the Book Fund as at 31 December 1955 is £588 14s. 2d. Of the 10,000 copies of this work printed, only 4,588 remain to be sold.

JOURNAL OF THE BOTANICAL SOCIETY, PART XL. Edited by Professor H. B. Rycroft, published during the year.

WILD FLOWER SHOW. On a suggestion from the Wild Flowers Protection Committee, the Council of the Society sponsored the first Wild Flower Show ever to be held by the Botanical Society. The Show, which was held in the Lecture Hall, Kirstenbosch, on 8 October, was opened by Major-General F. H. Theron, C.B., C.B.E. Only members of the Botanical Society were eligible to enter exhibits all of which had to be grown by themselves. Despite very inclement weather there were approximately 1,000 visitors. A charge of 2s. 6d. to non-members was made. Thanks to the co-operation of members, 120 exhibits, representative of many species of our flora were staged. All of these were of a high standard and it was particularly gratifying that many country members took part. Two exhibits of succulents came from as far away as Grahamstown and were packed most carefully so that they arrived in perfect condition. These particular exhibits, which were entered by Miss G. Blackbeard, have since been presented to Kirstenbosch by this lady. No actual prizes were awarded for exhibits, as apart from it being our first venture, it was felt that these would be of secondary importance to the members who exhibited specimens of their skill and care. There were, however, some very charming hand-painted prize cards given and these seemed to more than compensate our members, who by their wholehearted co-operation helped to give so much pleasure and interest to the visitors to the show.

DISTRIBUTION OF SEEDS. Reports of very good germination of Kirstenbosch seeds have been received from home and overseas. A total of 15,455 packets of seeds were distributed by the Gardens in 1955.

MEMBERS' MEETINGS

22 March, 8.15 p.m. Lecture Hall, Kirstenbosch. Annual General Meeting. After the meeting Dr. P. J. H. le Roux gave a programme of cine films, featuring flora and fauna of South Africa.

26 April, 8.15 p.m. Lecture Hall, Kirstenbosch. 'The Architect in the Garden' provided the theme for a most enjoyable illustrated talk given by Mr. Milton F. Stern.

7 June, 8.15 p.m. Lecture Hall, Kirstenbosch. Dr. M. R. Levyns spoke on 'Plant Names and their Origin'. Mrs. Levyns illustrated her talk with colour slides.

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

30 August, 8.15 p.m. Lecture Hall, Kirstenbosch. 'Water Gardening for the Small and Large Garden' was the title of an illustrated talk given by Miss E. L. Stephens.

13 September, 8.15 p.m. Lecture Hall, Kirstenbosch. Mr. B. L. Chambers, a visiting New Zealand member of the Society, gave a programme of cine films of Western Australian wild flowers.

17 September, 3 p.m. Anniversary Meeting, Karoo Garden, Worcester. About 100 members of the Society together with a large number of members of the Veld Trust attended this function. The principal speaker was Dr. E. L. Geyer, former High Commissioner for the Union of South Africa in England. Other speakers were His Worship the Mayor of Worcester, and Professor H. B. Rycroft. Dr. Geyer made a special appeal in his speech for more people to join the Society. After a tour of the Garden conducted by Mr. J. Thudichum, Curator, tea was kindly served by Mrs. Thudichum and ladies.

24 September, 3 p.m. 'A Botanical Ramble through Hare's Farm at Cape Point' provided a very happy afternoon's outing. Professor Rycroft, Dr. Lewis and Mr. Linley arrived early and staged an exhibit of the flora growing on the farm. Mr. Hare kindly gave us the use of his house, where, after our ramble, tea was made.

8 October, 11 a.m. Annual Gathering of Members at Kirstenbosch. Owing to very wet weather this gathering had to be held on the stoep of the Lecture Hall and was attended by 120 members, many of whom had travelled long distances. Professor Rycroft reviewed the work of the Gardens over the year. He then announced that two additional Gardens were to be incorporated in the National Botanic Gardens of South Africa. Miss E. L. Stephens, a Life Member of the Botanical Society and a Member of Council, had purchased for Kirstenbosch an area of land at Philippi on the Cape Flats, and Mr. M. Versveld had agreed to cede a portion of his farm at Darling to Kirstenbosch. By the acquisition of two new Gardens much could be done to preserve for posterity many of the rare and beautiful species which at present are disappearing from the Darling and Cape Flats areas. At the conclusion of the business, Professor Rycroft introduced Major-General Theron and asked him to perform the opening ceremony of the Wild Flower Show. Full details of this Show appear earlier in this Report.

29 October, 2.30 p.m. Mr. and Mrs. G. E. Williamson's delightful garden at Phyllis Court, Constantia, was the

venue of a very happy afternoon. After a tour of the garden, tea was kindly provided by our host and hostess.

13 November, 11.30 a.m. Mr. and Mrs. H. N. Porter's Wild Flower Reserve at Betty's Bay was visited on this date. A very happy time was spent. After an introductory speech by Mr. Porter, Professor Rycroft was invited to declare the Reserve open to the public as from this date.

The Council's very grateful thanks are hereby recorded to all those who so kindly gave their time and services to the above meetings, which were a notable feature of the Society's activities during the year.

ELECTION OF OFFICERS. The following were elected at the Annual General Meeting of the Society held on 22 March 1955:

President: Mr. W. Duncan Baxter.

Vice-Presidents: Mr. C. J. Sibbett, Professor R. H. Compton, Rt. Hon. E. F. Watermeyer.

Council:

Professor R. S. Adamson	Mr. J. S. Linley
Dr. A. J. Ballantine	Dr. C. A. Lückhoff
Mrs. F. Bolus	Miss K. Murray
Mr. C. H. Clayton	Mr. H. N. Porter
Mr. M. Clough	Professor H. B. Rycroft
Mr. D. R. D'Ewes	Mr. C. J. Sibbett
Mr. C. R. Gohl	Mr. L. A. Solomon
Professor W. E. Isaac	Miss E. L. Stephens
Miss M. E. Johns	Mr. W. C. West
Dr. M. R. Levyns	Mr. G. E. Williamson
Dr. G. J. Lewis	

All the 1954 members were re-elected to Council, with the exception of Dr. E. L. Gill who retired on account of ill-health. Dr. Gill had served on the Council of the Society for many years. To him, grateful thanks are here recorded. Dr. C. A. Lückhoff was elected in place of Dr. Gill.

THANKS. The Council of the Botanical Society of South Africa wishes to record its sincere thanks to the Cape Provincial Administration for the use of its rooms for meetings held during the year. Appreciation is also extended to the daily press for co-operation in reporting the activities of the Society during the year.

C. J. SIBBETT

Chairman

(MRS.) W. N. HALL

Hon. Secretary/Treasurer

Wild Flowers Protection Section Committee

ANNUAL REPORT FOR THE YEAR ENDED 31 DECEMBER 1955

Two Meetings of the Committee were held during the year.

FINANCIAL. Subscriptions to the section amounted to £249 17s. 5d. plus £31 1s. 9d. Wild Flower Show receipts, which together with the Cape Provincial Administration Grant-in-Aid of £150 and interest on investments, £24 4s. 8d., made a total revenue received of £455 3s. 10d. Assets of the section as at 31 December 1955 stand at, Balance in the bank £512 8s. 10d., Fixed deposits £630 15s. 9d.

WILD FLOWERS PROTECTION ORDINANCE. As reported in 1954, the existing Wild Flowers Protection Ordinance is in the process of being redrafted. The Wild Flowers Protection Committee has spent much time and thought on its recommendations already made in respect of the new Ordinance, and during 1955 further recommendations were submitted and accepted in principle by the Cape Provincial Administration. Among other suggestions was the need for inclusion of more species on the protected list. Professor Rycroft represented the Wild Flowers Protection Committee at the Advisory Committee to the Department of Nature Conservation Meeting at Middelburg in April.

INSPECTION OF WILD FLOWER NURSERIES. Mr. H. D. W. Meyer, appointed inspector of the section, together with Mr. V. Karg, and other officers of the Cape Provincial Administration, visited 11 registered wild flower nurseries and 58 registered sites at Cape Town, Paarl, Worcester, Stellenbosch, The Strand and Hermanus during the year. In addition, inspections were made of the properties of 13 persons who had applied for registration as wild flower nurserymen. Of these, 12 were recommended. Visits were also made to most of the country wild flower shows, favourable reports being received in respect of most of these shows.

PATROLS ON COUNTRY ROADS. Mr. Meyer, accompanied by officers of the Cape Provincial Administration, patrolled a considerable area of the Western Cape in 1955 during which the names of 70 offenders against the Ordinance were taken. Of these, 50 were found picking wild flowers within 50 yards of the centre of the road, some were caught picking in Reserves, and other were picking protected species. These offenders when brought before the courts paid fines from 10s. to £5.

SALE OF PROTECTED WILD FLOWERS. In general the control of the sale of protected wild flowers by local sellers is well in hand. In the country districts, however, reports are still being received that wild flowers, protected and unprotected, are being sold illegally. This matter is receiving the strictest attention of the inspectors.

CONTRAVENTIONS OF THE ORDINANCE. Mr. Meyer submitted the names of 104 offenders to the public prosecutor during the year. These included:

- 12 Selling protected species.
- 67 Other offences.
- 3 Children trading.
- 19 Picking by the roadside.
- 1 Nurseryman's site.

These figures show a decrease of 11 compared with 1954.

MEMBERS OF THE COMMITTEE, 1955. The following were re-elected by the Council of the Botanical Society:

Professor H. B. Rycroft	Miss M. E. Johns
Mr. C. J. Sibbett	Miss K. Murray
Mrs. F. Bolus	Mr. H. N. Porter
Mr. C. H. Clayton	Mr. C. St. Leger Searle
Mr. C. R. Gohl	Mr. W. C. West
Mr. J. S. Linley.	

Professor Rycroft was re-elected Chairman at the first meeting of the Committee.

THANKS. The Wild Flowers Protection Committee would like to place on record its deep appreciation for the help and co-operation it continues to receive from the Cape Provincial Administration as a whole, and in particular its inspectors who are of invaluable help to Mr. Meyer in the performance of his duties. The sincere thanks of the Committee are also extended to the daily press who, by their propaganda in reporting the activities of the section, have done much to foster the interest in the protection of our flora.

H. B. RYCROFT
Chairman

(MRS.) W. N. HALL
Hon. Secretary/Treasurer

THE BOTANICAL SOCIETY OF SOUTH AFRICA

BALANCE SHEET as at 31 DECEMBER 1955

	£	s.	d.	£	s.	d.		£	s.	d.	£	s.	d.
Life Membership Fund:													
Balance as at 1/1/55	2,315	7	3				Cape of Good Hope Savings Bank:						
Add amount received during 1955 ..	235	0	0				Deposit with interest at 4% p.a. to						
				2,550	7	3	31/12/55				886	15	10
Subscriptions paid in Advance ..				176	1	11	Post Office Savings Bank:						
Dr. Bernard Price Bequest Fund..				827	10	0	Deposit with interest at 3% p.a. to						
National Botanic Gardens:							31/12/55				91	5	3
Surplus for year				2,123	13	3	United Building Society:						
							Fixed Deposit for 12 months with				629	15	2
							interest at 4% p.a. to 31/12/55 ..						
							Savings Bank Account with interest				427	18	6
							at 3% p.a. to 31/12/55				1,057	13	8
							South African Permanent Mutual						
							Building Society:						
							Fixed Deposit for 12 months with				511	12	0
							interest at 4% p.a. to 31/12/55 ..						
							Fixed Deposit for 12 months with				940	12	4
							interest at 4% p.a. to 31/12/55 ..				1,452	4	4
							Cash—At Standard Bank of S.A., Ltd.				1,217	19	4
							—On hand				8	9	10
											1,226	9	2
							Less Liabilities as at 31/12/55 ..				15	15	0
											1,210	14	2
							Miscellaneous Assets:						
							Amount due from Wild Flower Pro-						
							tection Section				11	15	0
							Dr. Bernard Price Bequest—Invest-						
							ment Fund:						
							Fixed Deposit for 12 months with the						
							United Building Society, with						
							interest at 4% p.a. to 31/12/55 ..				349	8	7
							Office extensions				617	15	7
											967	4	2
											£5,677	12	5
Wild Flower Protection Section:							Wild Flower Protection Section:						
Balance as at 1/1/55	975	11	3				Fixed Deposit for 12 months with the						
Grant from Provincial Administration	150	0	0				S.A. Permanent Mutual Building						
Subscriptions—Ordinary—received							Society, with interest at 4% p.a.						
during 1955	249	17	5				to 31/12/55				317	17	5
Interest received during 1955 ..	24	4	8				Fixed Deposit for 12 months with the						
Wild Flower Show surplus ..	31	1	9				S.A. Permanent Mutual Building						
							Society, with interest at 4% p.a. to				145	1	3
							31/12/55						
Less 5% of 1955 subscriptions credi-							Fixed Deposit for 12 months with the						
ted to General Administration:							S.A. Permanent Mutual Building						
Expenses	£11	15	0				Society, with interest at 4% p.a. to				167	17	1
Salaries	265	0	0				31/12/55						
Stationery, Postages,							Cash at Standard Bank of S.A., Ltd.				512	8	10
Travelling Expenses,							Current Account						
Bank Charges, etc.	22	10	6								1,143	4	7
											11	15	0
							Less Amount due to General Account						
											1,131	9	7
											£6,800	2	0

We have to report that we have examined the Balance Sheet with the Books and Vouchers of the Society, and have obtained all the information and explanations we have required. We are satisfied that the Securities are in existence and that the Society has kept proper Books and Accounts.

We are of opinion that such Balance Sheet is properly drawn up so as to exhibit a true and fair view of the state of the Society's affairs at the date thereof according to the best of our knowledge and the explanations given to us and as shown by the Books of the Society.

R. M. JOUBERT & CO.
Chartered Accountants (S.A.)
Auditors

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

INCOME and EXPENDITURE ACCOUNT for the Twelve Months ended 31 December 1955

	£	s.	d.	£	s.	d.		£	s.	d.	£	s.	d.
General Administration Expenses ..				157	8	11	Subscriptions:						
Audit Fees, 1955				15	15	0	Family Members	524	5	5			
Honorarium to Secretary/Treasurer ..				300	0	0	Ordinary Members	2,095	11	10			
Bank Charges				11	4	0	Associate Members	303	14	3			
Stationery, Printing, Duplicating, etc.				125	10	1					2,923	11	6
Journal No. XXXIX—Expenses incurred during 1955				26	14	0	Donations				46	9	6
Journal No. XL:							Interest on Investments				142	5	3
Cost to date, including printing, despatching, etc.	493	15	6										
Less amounts received from advertisements	141	14	6										
						352	1	0					
Surplus for year						2,123	13	3					
						£3,112	6	3					
											£3,112	6	3

PUBLICATIONS ON SALE AT KIRSTENBOSCH

The following may be obtained by application, enclosing payment, to The Hon. Secretary, Botanical Society, Kirstenbosch, Newlands, C.P., South Africa. Prices include postage.

'Plants of Land and Sea'; W. E. Isaac	6d.
'The Genus Oxalis in South Africa'; T. M. Salter. (355 pages, 10 plates, 73 text-figures.)	35s.
'The Species of Oxalis occurring in the Cape Peninsula and how to distinguish them'; T. M. Salter	6d.
'General Hints on Raising Indigenous Plants from Seed'; H. F. Werner	6d.
'The Wilds, Johannesburg'; Miss G. Edwards	6d.
'A Tip for Horticultural Societies'; Dr. N. R. Smuts	6d.
'The Cultivation of Buchu'; H. F. Werner	6d.
'The National Botanic Gardens of South Africa, Its Aims, Functions and Policy'; R. H. Compton	6d.
'Plant Collecting in the Kaokoveld'; H. Hall	6d.
'Three Hundred Years of Trees'; R. H. Compton	6d.
'South African Proteaceae and their Cultivation'; H. F. Werner	6d.
'Progress in the Study of the Silver Tree Disease'; D. Olivier	6d.
'Pelargonium—A South African Contribution to World Gardens'; F. M. Leighton	6d.
'The Propagation of Succulents from Seeds and Cuttings'; H. Hall	6d.
'Growing Proteaceae in the Summer-rainfall Area; M. M. Vogts	6d.
'Seaweeds'; W. E. Isaac	6d.
'Some South African Biennials and near-Biennials and their cultivation'; H. F. Werner	6d.
Annual Reports of the National Botanic Gardens, 1913-55, each year	3d.
Reprints available of articles published in the 'Journal of South African Botany', on inquiry, each	6d.
'The Journal of South African Botany'; Vols. I-XXII, 1935-56, each volume in four quarterly parts; per volume 30s., per part 10s. 6d. (To members of the Botanical Society 25s. and 8s. 6d. respectively.) Back volumes at price of publication.	

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

JOURNAL OF THE BOTANICAL SOCIETY: BACK NUMBERS

The following Parts are obtainable at the prices shown. The principal contents are mentioned below: each part also contains full-size Plates, News and Notes, Reports, etc.

Price to Members of the Botanical Society 1/6; to non-Members 2/6

Part	VIII.	South African Geraniaceae. The Cultivation of Geraniaceae. Medicinal and Aromatic Plants in S. Africa. South African Heaths. The Cultivation of Heaths.	L. Bolus. J. W. Mathews. R. H. Compton. L. Bolus. J. W. Mathews.
"	XXI.	Aloe Marlothii: Some Forms and Hybrids. Lawn Grasses on Trial at Kirstenbosch. How to form a Garden Library. South African Conifers for Garden Use. From New York to Kirstenbosch and Back.	G. W. Reynolds. J. W. Mathews. L. B. Creasey. J. W. Mathews. S. V. Coombs.
"	XXII.	South African Succulents at Kew. An Old Cape Frontier. Our Wild Flowers and Their Protection.	Sir Arthur Hill. E. A. Walker. F. Guthrie.
"	XXIII.	Economic Plants at Kirstenbosch. Garden Gladioli—Their Origin and History. Growing Plants from Seeds. Letters from an Early Cape Botanist.	F. W. Thorns. L. B. Creasey. S. G. Fiedler. M. C. Karsten.
"	XXVI.	The South African Genera of the Haemodoraceae. Humus and Soil Fertility. Mountains and Their Vegetation.	W. F. Barker. F. W. Thorns. R. H. Compton.
"	XXVII.	Weeds: The 'New' Cape Flora. Drug Plants.	R. S. Adamson. F. W. Thorns.
"	XXVIII.	The Herbarium of the National Botanic Gardens, Kirstenbosch. Nature Study in the Forests at Kirstenbosch.	R. H. Compton. M. E. Johns.
"	XXXI.	Cape Annuals for the Garden. A Plea for South African Trees.	F. W. Thorns. D. R. D'Ewes.
"	XXXIII.	Indigenous Plants. The Species of Oxalis occurring in the Cape Peninsula. A National Park in the Outeniquas. Some Impressions and Comparisons.	F. W. Thorns. T. M. Salter. R. H. Compton. H. Hall.
	XXXVI.	The National Botanic Gardens of South Africa: Its Aims, Functions and Policy. A Visit to the Herbarium, Kirstenbosch. Plant Collecting on the Kaokoveld.	R. H. Compton. W. F. Barker. H. Hall.
"	XXXVII.	Botanical Notes on a Visit to the Cape. Three Hundred Years of Trees. South African Proteaceae and their Cultivation. Progress in the Study of the Silver Tree Disease.	Sir Edward Salisbury. R. H. Compton. H. F. Werner. D. Olivier.
"	XXXVIII.	Pelargonium—A South African Contribution to World Gardens. The Karoo Garden, Worcester The Propagation of Succulents from Seeds and Cuttings.	F. M. Leighton. J. Thudichum. H. Hall.
"	XL.	Seaweeds. An Australian Plant Propagator looks to South Africa for new plants for Australian Gardens. Growing Proteaceae in the Summer-rainfall Area. Some South African Biennials and near-Biennials and their Cultivation. Some impressions and reflections of a Plant Collector.	W. E. Isaac. T. A. Browne M. M. Vogts. H. F. Werner. T. P. Stokoe.

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OBJECTS:

- (a) To encourage the inhabitants of South Africa to take an active part in the progress and development of the National Botanic Gardens at Kirstenbosch and the Karoo Garden at Worcester and to induce them to appreciate their responsibilities therein.
- (b) To augment the Government grants towards developing, improving, and maintaining fully equipped botanical gardens, laboratories, experimental gardens, etc., at Kirstenbosch and Worcester.
- (c) To organize shows at which may be displayed the results of botanical experiments or cultural skill in improving the different varieties of South African flora.
- (d) To enlighten and instruct the members of botanical subjects by means of rambles, meetings, lectures and conferences, and by the distribution of literature.
- (e) To promote the preservation of the Native Flora of South Africa, to encourage public interest in it, and to co-operate with the Public Authorities and others in the attainment of this object.

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Part XLIII

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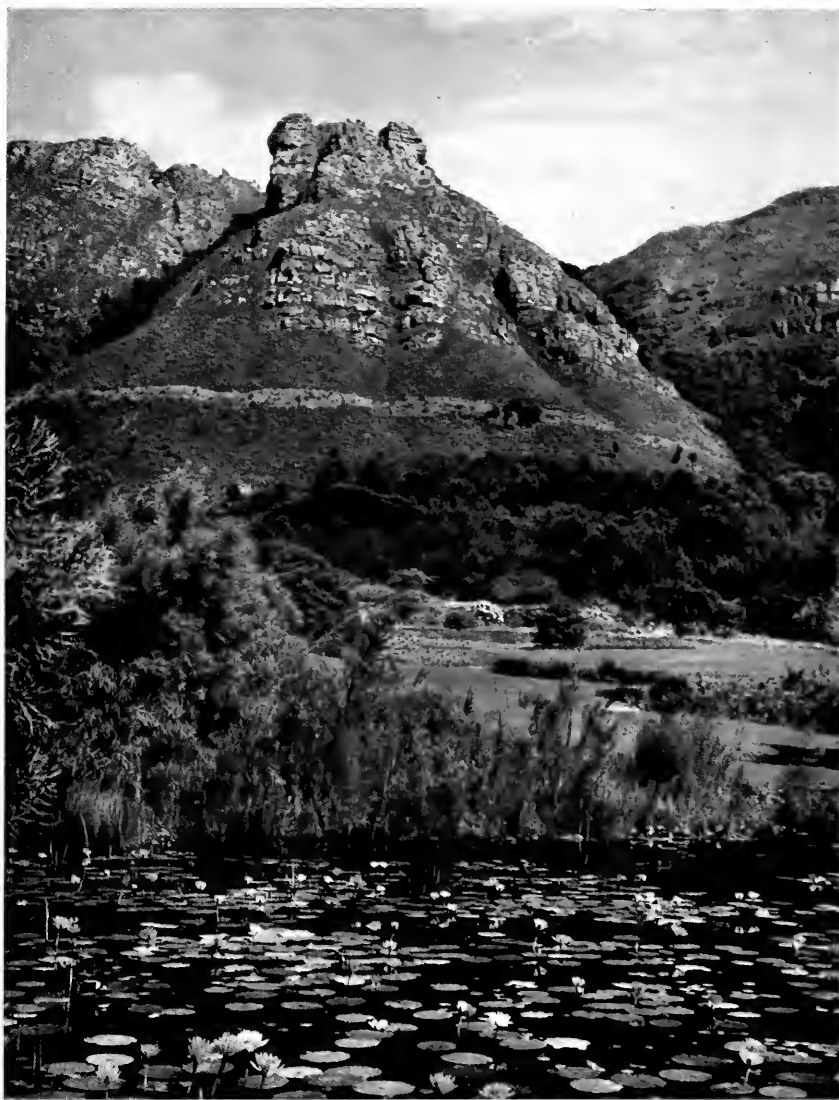


PLATE 1
Castle Rock and the Lily Pond, Kirstenbosch

The Journal of the Botanical Society of South Africa

EDITED BY H. B. RYCROFT

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- PLATE 1. Frontispiece. Castle Rock and the Lily Pond, Kirstenbosch.
PLATE 2. Some rare Namaqualand Stapeliads.

News and Notes

ELECTION OF HONORARY LIFE MEMBERS

In appreciation of the work done, and the interest shown in the Botanical Society of South Africa and the National Botanic Gardens of South Africa, the Society elected three distinguished members to Honorary Life Membership at the Annual General Meeting held in March 1957. They were Mr. W. Duncan Baxter, Dr. L. Bolus and Miss Edith L. Stephens. The only other Honorary Life Members are Mrs. Pearson, widow of Professor H. H. W. Pearson, the first Director of the National Botanic Gardens of South Africa, and Professor R. H. Compton, the second Director.

* * *

HISTORIC COLLECTION OF PLANTS TRANSFERRED TO KIRSTENBOSCH

Towards the end of 1956 the Compton Herbarium at Kirstenbosch was considerably enriched by the acquisition of the entire herbarium of the South African Museum in Cape Town. The transfer constitutes a major development in the history of Kirstenbosch as the collection is the oldest in South Africa and contains many valuable specimens collected by Ecklon, Zeyher, Pappe and others. We are glad to welcome the two staff members of the Museum Herbarium who were transferred with the collection. They are Dr. G. J. Lewis and Mrs. I. Willment. The value and volume of research work undertaken in the Compton Herbarium in the future are likely to be increased as a result of the amalgamation of the two herbaria.

* * *

J. W. MATHEWS FLOATING TROPHY

The first award of the J. W. Mathews Floating Trophy was made at the Annual Gathering of members of the Botanical Society at Kirstenbosch in October 1956. The winner of the trophy was Richard Morey of Northlands High School, Durban. His essay is published in this Journal.

* * *

PARKING FEE AT KIRSTENBOSCH

Members all know that the pace of progress and development at Kirstenbosch depends on *funds*. At various times interested persons have suggested that an admission charge should be levied at the Gardens to

augment our finances. The trustees were loath to impose such a charge but, instead, a parking fee of 1s. per car has been levied at week-ends and public holidays only, since September 1956. Members of the Society are of course allowed to park free of charge on production of their membership card. The takings from September until the close of the financial year at the end of March 1957 amounted to £745.

* * *

FILM OF KIRSTENBOSCH

The making of a good 400 ft. film in colour and with sound is an expensive business and that is the reason why we have not had one although its need has been realized for a long time. However, fortunes change and at last a firm has agreed to sponsor the production of a film we want. Most of the work has been completed but a few final shots have still to be taken.

This film will show many aspects of the activities at Kirstenbosch which are not often seen by visitors to the Gardens.

It has not yet got a title. Suggestions by readers would be most welcome. The title should have public appeal.

* * *

JOHANNESBURG FESTIVAL

To commemorate the seventieth anniversary of the founding of Johannesburg, the city held a spectacular Festival in October 1956. By special request Kirstenbosch staged a wild flower exhibit which covered a floor space of about 500 square feet. It was viewed and commented upon by thousands of people who attended the Festival.

The National Botanic Gardens of South Africa was awarded a Gold Medal by the Transvaal Horticultural Society for this exhibit.

The following is an extract from a letter which was received from the Festival Organization: '... the exhibit for which you were responsible was one of the outstanding features of this second Floral Exhibition and contributed in no small measure, not only to the success of the Show, but also to the general success of the Festival as such. It gives me much pleasure, therefore, to convey to you, and to all those responsible for your exhibit, the most sincere thanks and appreciation of my Committee.'

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

KAROO GARDEN, WORCESTER

Steady progress has always been made at the Karoo Garden but it has usually been slow because it was possible to divert only limited funds from Kirstenbosch to its first child. Conditions, however, have improved recently and it has been possible to appoint a Senior Horticulturist to assist the Curator. In addition, the labour force has been increased from six to ten. Within a few months a marked improvement could be observed. This Garden is likely to attain not only national but international fame.

* * *

MAJOR WORKS

About fifteen years ago representations were made to the Government for the construction of various buildings, and it was with great joy that we were advised early this year that work would commence without further delay. In fact building operations which will cost approximately £27,500 have now been started. The works include staff houses at Kirstenbosch, two new glasshouses, ladies' rest room, living quarters at the Tea House, extensions to the Compton Herbarium and at the Karoo Garden a house for the Senior Horticulturist.

To the Government and to the Department of Public Works we are indeed grateful.

* * *

REGIONAL BOTANIC GARDENS AND WILD FLOWER RESERVES

The following appeared in the *Cape Times* on 13 June 1957:

"The Government intended to start Botanical Gardens, on the lines of the Botanical Gardens at Kirstenbosch, in each of the other three provinces of the Union, a spokesman of the Department of Education, Arts and Science told the *Cape Times* yesterday.

"The gardens will come under the control of Kirstenbosch, but are not expected to be started for at least ten years.

"We are anxious to preserve South African fauna and flora as much as possible but it will take time and money", the spokesman said. "Before we can start developing botanical gardens in the provinces we shall have to get Kirstenbosch exactly as we want it."

"He said that the developments proposed for Kirstenbosch, including a new road and new buildings, would cost at least £60,000. To get all the money and have all the work done would take a long time.

"The proposed gardens would be in Natal—probably in Maritzburg or Durban—in the Free State and in the Transvaal. They would be like sub-sections of Kirstenbosch.

"There would be no difficulty in getting the land for the gardens—there have been several offers—but the money for their development would not be so easy to find.

"The gardens would also be used to produce seeds and cuttings of indigenous plants.

"One such garden—the Karoo Gardens at Worcester—was already in existence."

The establishment and development of Regional Gardens will naturally be a slow process because they require funds. This is certainly true if they are to be developed along the lines adopted at Kirstenbosch.

The setting aside of wild flower reserves, however, is a different matter because extensive layouts and massed plantings are not contemplated. The main purpose of the reserves will be to provide sanctuaries for the natural flora in areas where it is being gradually but surely exterminated. Each reserve, however, should be securely fenced, but the introduction and planting of species known to occur in the neighbourhood but which are not represented on the reserve will be done, we hope, largely by volunteers.

A commencement for example has been made at the Darling Flora Reserve—given by Mr. Tienie Versveld—by the planting of the rare *Protea odorata* which is known to occur in only one locality where it is being choked out by exotic wattles.

Transfer of the Cape Flats Flora Reserve donated to Kirstenbosch by Miss Edith L. Stephens has now been registered in the name of the Government and put under the control of the National Botanic Gardens of South Africa.

* * *

HONOUR FOR MISS STEPHENS

In 1957 the Council of the Cape Tercentenary Foundation offered awards to those who in its opinion had rendered meritorious service with regard to the protection of the flora and/or fauna of the Cape Province. Miss Edith L. Stephens received an award of £400. We offer her our congratulations and are glad to know that this will help her to pay for the Cape Flats Flora Reserve.

Miss M. Courtenay-Latimer of the East London Museum and Mr. C. J. Skead of the Kaffrarian Museum, King William's Town, each received £200 and to them also we extend our congratulations.

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

WILD FLOWER GARDENS

It is very encouraging to note that various municipalities are setting aside areas for the protection and cultivation of the local flora. The well-known Garden at Caledon was established many years ago and each spring attracts thousands of visitors.

Settlers' Park at Port Elizabeth is now being developed as a nature reserve for the indigenous plants. Major F. R. Long, a member of the Botanical Society of South Africa, has been the moving spirit.

For the last two years a small band of workers headed by Mrs. Basson and Miss van Zyl has worked very hard to establish a wild flower garden at Montagu. The spring display is very beautiful and the garden is well worth visiting.

The Municipality of Hermanus is also considering the establishment of a wild flower reserve on the outskirts of the town. It is a large area of more than 400 acres and is particularly rich in wild flowers.

We should be interested to know whether other municipalities intend doing likewise.

SPECIAL ANNOUNCEMENT

" VISIT TO A MEMBER'S GARDEN "

Miss Kathleen Murray has kindly invited members of the Society to visit her garden at Elgin and have tea on Sunday, 12th January, 1958, at 3 p.m.

Cars meet at Elgin Post Office at 2.45 p.m.

Propagation and Cultivation of Proteas and Heaths

By H. F. WERNER

(Extract from a paper read at the Conference of the Institute of Park Administration
(South Africa) in February 1957 in Cape Town)

INTRODUCTION

THE question of the greater use of the indigenous flora in Public Parks and Gardens in South Africa is one which has, of course, occupied the attention of Conference before now. But in the papers previously read, technical information on propagation and cultivation and a discussion on the horticultural merits, including landscape value, have hardly been dealt with.

As this is a very large subject I have perforce in this paper to confine myself to certain classes of plants, particularly the species which are noteworthy garden subjects from the publicity angle and, therefore, invaluable to the parks administrator wherever it is practical to cultivate these plants.

Some of these plants are, from the propagational and cultural angle, comparatively easy subjects but, and this is the point, how little use is unfortunately made of them by parks administrators who are in a position to do so.

That the South African flora is world famous cannot be denied. It is strange, therefore, that in publicity value alone, where the indigenous flora should be rated highly, it is overlooked so much in its own country.

It rests with the professional horticulturist—the man in charge of municipal parks or a botanic garden or any other beautification work—to provide the public, and the visitors to our shores, with more interest and more beauty than is sometimes the case in certain centres to-day.

As a professional horticulturist and a Fellow of this Institute I should, therefore, like to draw attention in this paper to the need for parks administrators to know and appreciate South African plants better.

FACTORS IN SUCCESSFUL CULTIVATION

For success in the cultivation of the indigenous flora nature should be followed in so far as may be practicable within the limits of the garden.

Fortunately many of our indigenous plants show remarkable adaptability, even so far as temperature extremes is concerned. In the latter respect the chances of success with plants native to mild areas, when grown in cold areas, may be minimized, but even here the results may be surprisingly good as has been found, for example, in the case of the Proteaceae, Ericaceae, shrubs in general, annuals, bulbous plants, perennials, succulents, etc., from coastal areas, which are being successfully cultivated, for example, in Johannesburg and Pretoria.

It is a matter of experiment in the various climatic zones to prove the suitability or otherwise of untried plants, and it is the duty of the parks administrator to be continuously on the look-out for new plant material. It should be noted, as regards hardiness, that many species actually only require protection in the seedling stage—which would mean shelter against frost, shading against extreme heat and provision, of course, against drought until the plants are strong enough.

Although the nature of the soil is important this factor is well under control in that we can *make* the soil to suit the plants. This would include the pH of the soil which, in some circumstances, is important where particular plants have definite preferences, as, for example, in the Protea family and Ericas which require an acid condition as opposed to an alkaline one, and where a neutral one does not suffice, pH5.5 to pH6.0 has been found to be suitable in this respect. In cases where the pH reading is insufficiently low, the incorporation of, and periodic top-dressing, i.e. mulching, with peat, compost, or leaf-mould is a safe method. Top-dressing of the plants with wattle leaves has been found to be useful. I suggest the value of spent tan bark would be worth investigating. The application of sulphur or aluminium sulphate in small dosages is, of course, an alternative treatment: your soil would require testing, however, so that the amount to be applied, and frequency, could be determined under any given conditions.

Winter-rainfall plants when grown in summer-rainfall areas would require some moisture at the appropriate time of the year. In the case of the larger woody subjects, like *Proteas*, this need not be regular watering but more towards the end of winter and spring when buds are beginning to push forth—when each bush could be given a good soak. This would obviously give better quality blooms which would last longer.

Aspect required in the cold areas for plants from the mild coastal areas would preferably be a north one—which is less severe in winter—the northern slopes of koppies being the ideal. In warm coastal areas, for example Natal, the eastern or south-eastern slope would be preferable in the circumstances.

In general the broad principles of horticultural practice as applied to non-indigenous plants will apply to the indigenous. The proper treatment and care of any plant will pay handsome dividends, and all the more will this repay the cultivator of the indigenous flora. Do not look upon the indigenous plant as something to fill up that odd corner 'where nothing else will grow'. The proper attention to details in propagation will also be a prerequisite to success.

PROPAGATION AND CULTIVATION OF SOME SOUTH AFRICAN PLANTS

During the forty-four years since the establishment of the National Botanic Gardens of South Africa at Kirstenbosch, by Act of Parliament in May 1913, work in the cultivation and propagation of our indigenous flora has steadily progressed. To-day the horticultural value of many species has been assessed and, by experiment, the best methods of their propagation and cultivation evolved.

I should like to mention here that various pamphlets dealing with the propagation and cultivation of sections of the indigenous flora are now available: these were originally published in this Journal.

In this paper I propose to deal with the families Proteaceae and Ericaceae and it should be noted that the information supplied is as employed at Kirstenbosch; slight adjustments in methods to suit any particular conditions elsewhere could be made, but I strongly advise that the basic principles, especially time of sowing, pricking out, etc., should be adhered to.

Another factor is the question of sound seed. In some *Protea* spp. and others the percentage of fertile seeds is low. In the majority of *Protea* spp., the flower-heads require a year at least in which to ripen their seeds.

Leucospermum spp., *Serruria* spp., and *Paranomus* spp. ripen their seeds soon after the flower-heads are over. *Leucadendron* spp. vary up to twelve months or so.

In Proteaceae, largely through the pioneer efforts of Kirstenbosch the cultivation of this remarkable family of plants is being successfully undertaken in different parts of the country, likewise in Australia, New Zealand, parts of the U.S.A. such as California, as well as other countries with comparable climatic conditions. A tribute should be paid here to my two predecessors, as Curators of Kirstenbosch, namely F. W. Thorns and the late J. W. Mathews, for their part in the work on this subject.

A. PROTEACEAE

PROPAGATION AND CULTIVATION OF AULAX, LEUCADENDRON, LEUCOSPERMUM, MIMETES, PARANOMUS, PROTEA, SERRURIA

The most practical method of propagation of the *Protea* family is by seeds. Cuttings can be and are employed, particularly by nurserymen in Australia and New Zealand, but in our experience here plants so raised have an inferior root system.

Seeds are sown about April, i.e. with a fall in temperature as opposed to a general rise in temperature which would be the case in spring. This is of importance, especially for those species which take a long time to germinate, because, as stated below, an even degree of moisture in the seed-beds is essential to encourage germination, while high humidity will cause 'damping-off' of the seedlings or even rotting of the seeds. With slow germinating species frosts would have no harmful effect—on the contrary this seems beneficial. Quick-germinating species require of course some protection for the seedlings as a result of their earlier appearance. Later sowing would not circumvent this as the seeds prefer to be in the soil while there is still a little warmth in the autumn.

Various seed-sowing methods have been tested at Kirstenbosch over the years and the best all-round results have invariably been obtained by sowing in nursery-beds or, if seeds are in very small quantity, in pots plunged up to their rims in beds. These beds should be in the open and not shaded by trees in any way—also avoid covering them with grass which causes 'sweating'. The soil in the beds should be light with a little leaf-mould or compost or peat added. To quote from a paper* I wrote for this Journal: the easiest

* Part XXXVII, 1951

method of sowing is by forming drills across the beds, at, say, 6–9 in. intervals, the depth depending on the size of the seeds, an average depth being about $\frac{3}{4}$ –1 in. The drills can be easily made by pressing a strip of wood into the bed to the requisite depth. The seeds are spaced 1 in. apart in the drills, covered with a sandy mixture firmed down, and the beds kept moist; as already indicated the secret of success is the maintenance of an even degree of moisture. Should the degree of moisture fluctuate too greatly germination can be seriously delayed—so much so, that the seeds of *Leucospermum* spp., for instance, may remain dormant.

Apart from fluctuation in soil moisture which should be guarded against it may also, perhaps, be necessary to give protection against the disturbance of the beds by moles, or depredation by mice or birds.

Recent experimental work at Kirstenbosch in nursery-bed methods has shown that if these seed-beds are prepared in garden frames this is an ideal method, the soil in the beds being raised somewhat to provide maximum light and air for the seedlings when they appear.

Tinning of seedlings. Germination varies according to genera and species, being anything from three weeks to three months and more before the cotyledons show above the ground. When the first true leaves are formed the seedlings are ready for lifting—either for tinning into individual containers or planting out into permanent positions. It has been found that better results are usually obtained by ‘growing on’ the seedlings for their first season in tins, for better control of watering and control of pests.

Manufactured galvanized iron tins (about 4–6 in.) which can be opened out for removal of the plants with minimum disturbance at planting time, or 2 lb. jam tins, are suitable—except for the silver tree which is a robust grower and requires a larger tin.

The soil for tinning is any average light type of soil enriched with some compost or leaf-mould, also a little bonemeal and/or superphosphate.

In tinning the seedlings, the cotyledons should be kept just above soil level. It is advisable also to sever the growing tip of the tap-root if this was not broken in lifting from the seed-bed. In any case a slight reduction in length of the tap-root if unduly long would not do any harm. The effect will be to encourage a fibrous root system, apart from actually facilitating transplanting. Watering should be carefully regulated, as excessive moisture at this stage might cause wholesale damping-off.

As the plantlets gradually increase in size, so watering can be increased accordingly. In mid-summer the intensity of the heat and rapid drying out of the tins can be minimized by placing the plants under a lath shelter (laths fairly wide spaced to prevent soft growth taking place in the plants).

In due course the young plants should have the growing tip removed (except silver tree) to encourage bushy growth. Species such as *Protea cynaroides* and *Mimetes lyrigera* which branch naturally from the base do not require this ‘stopping’.

Towards the end of summer the young plants are best stood right out in the open to harden their growth. Should they show signs of starvation in the tins, a little feeding with a balanced fertilizer could be resorted to. Any rooting-through of the plants should be guarded against and emerging roots from the tins removed as they appear.

Planting out. The young plants in tins are planted out as one-year-olds. In the west and south-west Cape this coincides with the advent of the rainy season in autumn, but elsewhere regular watering would be required at that time to assist the newly set-out plants in becoming established. In the case of the highveld, to avoid frost damage, spring-planting would be advisable.

Before attempting to remove the plants from their containers they should receive a good watering. In removing from jam tins squeezing the top of the tin and then giving the bottom a few sharp taps with the trowel will facilitate removal of the plant-ball intact. Disturbance of the roots must be avoided.

The holes for receiving the plants should be prepared beforehand by removing a spade’s depth of soil and breaking up the bottom layer in the hole, mixing in a little leaf-mould or compost, after which the top soil is returned and likewise enriched, plus a little bonemeal and/or a dusting of superphosphate. Planting must be firm.

The majority of the species of South African Proteaceae being mountainside or koppie plants or otherwise growing in well-drained situations, experience has shown that the best results in cultivation of this class is a well-drained loam. Only in rare exceptions are marshy conditions desired. The great majority require full sun. Under cultivation, pests and diseases are fortunately not unduly troublesome. Generally speaking the adaptability of this family to various soils is remarkable. Their flowering stage is also reached reasonably soon according to species, after the sowing of the seed—this being sometimes in the second season, but certainly

from the third in the case of a number of species. Attention by way of pruning to established specimens consists of the removal of spent flower-heads (unless seeds are wanted) and reducing flowered growths to maintain shape, if necessary.

SOME NOTEWORTHY PROTEACEAE FOR PARKS AND GARDENS

The Proteaceae are evergreens and in horticulture they fall into the class 'hard-wooded'. They usually take the form of shrubs or shrublets but include tree size. They are noteworthy for the wonderful lasting quality in the cut state of their flower-heads and rank among the finest of our indigenous plants, some being regarded as the most highly ornamental shrubs in the world.

Pride of place must, perhaps be given to the genus *Leucospermum* (Pincushions) especially *L. bolusii*, *L. nutans*, *L. reflexum*, and *L. tottum*, which have large heads, but also *L. album* (scented), *L. crinitum*, and *L. muirii*, which have numerous small heads. Many form fine symmetrical bushes which at the height of their beauty in spring and early summer are veritable mounds of flower-heads. Their flowering season is particularly long—some 4–6 months—from winter until mid-summer. There are some forty species in South Africa.

The genus *Protea* contains many remarkable species particularly *P. barbiger* (Big woolly Protea), *P. compacta* (Bot-rivier Protea), *P. cynaroides* (Giant or King Protea), *P. grandiceps*, *P. lepidocarpodendron*, *P. longifolia*, *P. marginata*, *P. mellifera* (Sugar Bush), *P. neriifolia*, *P. pulchella*; these are primarily winter- and spring-flowering but, in the case of one or two, produce heads at other times as well. Then there is *P. latifolia* which seems to be in bloom throughout the year. Of summer species we have particularly *P. laticolor* and *P. longiflora*, the latter with heads whose bracts open flat. There are over 100 species of *Protea* in South Africa.

Other noteworthy genera in the Proteaceae comprise *Mimetes* (sixteen species), particularly *M. lyriager* and *M. hartogii* (both dry-slope species), and the large genus *Leucadendron* (seventy-three species) which is dioecious, and which, apart from *L. argenteum* (Silver Tree), comprises some highly decorative species such as *L. adscendens*, *L. aemulium*, *L. decorum*, *L. discolor*, *L. grandiflorum*, *L. sericocephalum*, *L. venosum*, to name a few.

The genus *Aulax* (dioecious) has three species *A. cneorifolia*, *A. pallasia* and *A. pinifolia*.

Two further remarkable genera are *Serruria* (fifty species), particularly *S. aemula*, *S. artemisiaefolia*, *S. barbigera*, *S. florida* (Blushing Bride), and *S. rosea*, and the genus

Paranomus (fourteen species), especially *P. crithmifolia*, and *P. reflexa*.

B. ERICACEAE

PROPAGATION AND CULTIVATION OF ERICA

In regard to the propagation of *Ericas* (Heaths) there are two methods, namely by seeds and by cuttings.

Seeds are preferably sown in March or September. Most of the species have fine seeds in which case seeds are preferably sown in earthenware containers, in the usual manner employed for fine seeds. A rather fine, light soil mixture is required, say equal parts of loam, leaf-mould, or peat or compost and sand, with the addition of a little superphosphate or fertilizer mixture 5 : 13 : 5. If the 'John Innes' soil mixture formula is employed, the presence of lime does not materially affect the degree of acidity, with a reading of about pH 6.0 (heaths being regarded as acid-loving plants). As seeds are small it is important to sow thinly, while watering should be by the percolation method. A close propagating case in a glasshouse is an ideal place to stand the seed-pots, alternatively a frame is useful.

When the seedlings are large enough to handle they may be pricked out into small pots (2½–3 in.) or into 'flats', by spacing 1½–2 in. apart, using a similar mixture as for the seeds. The soil in the 'flats' should be firm. This enables one to cut the soil into squares and not unduly disturb the roots when the seedlings are ready to be potted or tinned individually—using 4 in. pots or 2 lb. tins, and a soil mixture with less sand than previously. The usual attention of shading and gradual hardening-off, 'stopping' if necessary, etc., should be given. They are finally planted out in the second season.

It is well to digress here for a moment and explain that the mycorrhizal fungus living in association with the Heaths is apparently not only on the roots but all tissues and also the ovary and seed; young plants raised from seeds or cuttings, therefore, are already provided with the necessary fungus, and no specially prepared soil, by incorporation of the fungus, is necessary. It is a proviso, however, that the growing conditions must be suitable.

In the propagation by cuttings the tops of the young shoots (not too soft) round the lower half of the plant are usually taken; they should be about an inch long and are prepared by the removal of the leaves from the lower half (a sharp scissors is suitable) and then inserted round the edge of small pots filled with sand or a mixture of sand and peat or sand and leaf-mould in equal pro-

portions, and the pots stood in a case as for seeds. If this type of equipment is unavailable the pots can be plunged in a sandbed in a frame. Spraying with an atomizer is beneficial. The use of hormone rooting powders and 'polythene' cases are possibly further advantages but insufficient data is available at this stage on this aspect. When sufficiently rooted the plantlets are potted individually and treated as for seedlings.

Planting-out is similar to that for Proteaceae but in general Heaths are best planted more closely together in relation to size than is the case with Proteaceae.

From the cultivation point of view it is a far cry from the appearance by William MacNab of *A Treatise on the Cultivation and Propagation of Cape Heaths*, which he wrote as Curator of the Royal Botanic Gardens, Edinburgh, in 1832. To-day there are many signs of a revival of interest in the Heaths.

The species which I list below are more or less dry hillside plants and, therefore, ideal for koppies, slopes and rock-gardens. In areas which have dry winters occasional watering is beneficial. Owing to their fine roots, cultivation near the plants should be avoided.

Pruning consists of reducing long growths after flowering to prevent the plants from becoming 'leggy'.

SOME NOTEWORTHY ERICAS FOR PARKS AND GARDENS

Cape Heaths were at one time the subject of much thought and attention in Europe—notably at the end of the eighteenth and beginning of the nineteenth centuries when collections under glass were very fashionable.

Some of these collections were large—much larger in number of species than anything which exists anywhere to-day. The various botanical and other works of the period, often with magnificent coloured plates, are ample testimony of the high regard in which our Heaths were held.

There are numerous beautiful species. All are ever-green shrubs, varying in size from shrublets to small tree-like in form. There are almost 500 species in South Africa, of which over 100 species are to be found in the Cape Peninsula.

As a genus they provide a great wealth of colour and beauty. Many have exceptional qualities as cut flowers and many make splendid pot plants. The following are only a small selection of those which should be grown in parks and gardens: *Erica baccans*, *E. blenna* (Lantern Heath, Riversdale Heath), *E. bowieana* (Albertinia Heath), *E. caffra*, *E. cerinthoides* (Red Hairy Heath), *E. chamissonis* (Grahamstown Heath), *E. decipiens*, *E. glandulosa*, *E. exurgens*, *E. globosa*, *E. hirtiflora*, *E. lateralis*, *E. mammosa* (Rooikalossie Heide), *E. peziza* (Kapokkie), *E. sessiliflora* (Green Heath), *E. speciosa*, *E. taxifolia*, *E. verticillata*, *E. vestita* (Trembling Heath), *E. viridipurpurea*.

The species listed are, roughly speaking, dry hillside plants, and I have chosen those examples which, I think, would have a fair chance of success in most parts of the country. To fellow horticulturists in heavy-frost areas I would say do not be despondent: they can still be grown in pots and utilized in many ways to the advantage of your parks and gardens.

Seven Years An Amateur Wild Flower Gardener: Some Hints and Lessons Learned

By A. J. A. SIMPSON

AS a person who has been obliged by circumstances and a sweating brow to tackle the problem of a wild flower garden at the Cape, I feel I might be able to help others who are starting by passing on a few of my experiences and some hints as to planning the lay-out.

I was blessed with a rocky plot on the Southern Cross Estate admirably suited to the project; the ground undulated and was strewn with weathered Table Mountain sandstone and there was a lovely view. My wife, my gardener and I rolled up our sleeves on one of life's happiest adventures—starting a Cape wild flower garden in ideal surroundings.

Sketching garden problems makes them the easier and a blackboard would be the real answer to the problem of putting across what I should like to pass on to you, but in its absence, perhaps a number of brief personal observations resulting from our experiences would be the best way.

(1) Wild plants in South Africa are so closely associated in our hearts with mountainsides and the great open spaces, that they do not easily remain attractive if drilled to the orderliness of the usual garden plants such as one finds in the normal suburban garden. Straight paths and planting in rows are, I find, unwise.

(2) If the spirit of our mountainsides is to be produced, paths cannot be wide and formal affairs—they must wander perhaps aimlessly and should not be bordered too obviously by rows.

(3) South Africa's indigenous trees are very beautiful and many are quick enough for your enjoyment and not that of another generation—Silver trees, Rooi Els and Keurbooms are just a few examples of the sort of trees which should be employed to provide your 'back drops' and vistas.

(4) It is highly important, with the aid of drawn plans, to scheme your garden vistas with an eye to light and shade, vertical breaks and so forth. When a tree has been planted, remember not to fall into the fault of planting gaily coloured annuals in its shade (south).

(5) Silver trees are very easy to grow, but losses are inevitable and if you have the room, these trees should be planted in greater numbers than you would expect to find when the garden is more fully developed.

(6) Proteas and Leucospermums are relatively easy and it should be remembered that *Leucospermum nutans* and *bolusii* provide perhaps the greatest amount of colour for the longest period of any of the shrubs. Many Proteas, though beautiful, flower for a relatively short period and are apt to become untidy with the years. These should be avoided in a wild flower garden which is not really large, as obviously the smaller the garden, the greater the need to choose the specimens in all categories which will be the most rewarding from the point of view of foliage and colour. Of the Proteas, *P. neriifolia* is perhaps the most prolific and colourful. Do not fall to the temptation of leaning on 'difficult' and rare varieties in the early stages—the luxuries can always be added later.

(7) When planting, the old and important rule which applies in normal suburban gardens must also apply in your wild garden. This is to allow the expected heights of plants to decrease as they near the borders of paths. A typical grading would be Silver trees, Leucospermums, Heaths, Gazanias, Bokbaaivygies. It is, I think, unwise to use bricks as a means of path-making, as man-made shapes so easily destroy the atmosphere of informality. Flagstones and weathered sandstone steps, with cement, when it must be used, carefully disguised, greatly help to create the delightful atmosphere which is so easily found at Kirstenbosch, where experienced professionals have been battling with the problem for many years. It will be noted that Kirstenbosch shuns the builder's brick, the cement slab and the pergola in cut timber, etc.

(8) I have found that paths of the Cape fine quick, with occasional flagstones, have a 'softening' effect, but where they are used, it is important to 'insulate' them from the planting areas, as fine quick so easily

intrudes to overwhelm such plants as *Gazanias*, etc. A concrete submerged wall, say 12 in. deep by 4 in. wide, capped by rough stones which project, say, 4 in. above the ground, provides an adequate and permanent protection. There is no need for shuttering, as a trowelled gutter of the shape required can be easily prepared and the concrete just dropped in to the requisite height. A trowel of three-to-one mortar on the top and then the pressed-in stone will give you a homogeneous whole. The grass tufts at the low stone border soften this and your *Gazanias* or other border plants can be allowed to grow right up to it on the other side of the stone.

(9) Garden sprays are a most unwise investment as most South African wild plants, especially *Proteas* and kindred shrubs, are very inclined to 'damp off' when subjected to prolonged doses of water and we have lost numbers which were planted near lawns which were receiving water regularly and had been inadvertently, included in a spray area.

(10) *Proteas*, *Leucospermums* and many other varieties of South African wild flowers do not like manure and very few of them thrive if the ground in which they are planted is dug over at regular intervals. Shallow hoeing to remove winter weeds and an application of well-rotted leaf-mould is the answer, especially in areas where during the heat of the summer the ground dries out quickly.

(11) If you have been fortunate enough to obtain a plot which has been relatively untouched and in which many indigenous varieties are already established, it is not a good thing to clear the existing veld away before you start. The less clearing you do the better. Immediately land is cleared, you come up against the worst enemy of the smaller wild plants—winter grass, and you have to face up to a vast amount of extra labour to keep this down. In addition, by clearing just where it is necessary, or in other words, before you fill up again with the plants you are putting in, you preserve the 'natural' look which is so essential to a successful wild flower garden. Heath, and we have many varieties at the Cape, is an all-important adjunct to any wild flower garden, yet it is extremely difficult to propagate and I have been most unsuccessful in obtaining anything like reasonable results from the relatively small quantities of seed which can now be spared to members. Young plants of a number of attractive varieties can be obtained from wild flower nurseries and other nurseries and it is well worth while to invest a fair amount in these, as eventually you will get your answer through 'self-

seeding'. It is always as well to remember that there are literally thousands of varieties of small and insignificant plants which do not necessarily produce an abundance of colour at any time of the year, but which are quite indispensable if a 'veld' which has the charm of our mountain foreground is to be developed.

(12) I have found that it pays handsomely to sow wild flower seeds in mother earth and not in boxes (with the possible exception of Heath seeds). Shrubs and perennials generally should be planted out into 2 lb. jam tins when they have reached a height of, say, 1 in. and kept for final planting-out in April or May of the following year. If *Proteas* and *Leucospermums* are pricked out after tap-roots have begun to develop, your losses will be heavy. If annuals are planted, it is not usually wise to sow *in situ*, and the experts at Kirstenbosch have found that planting out from seed-beds, though this is an arduous task, produces by far the best answers and their wonderful display of spring annuals is obtained in this manner. The seeds should be sown in April and planted out in late May and during June, depending on the size of the plants. All seed-beds should be watered regularly until the small plants are established and if in any particular section of your seed-beds a complete variety fails to appear, do not give up hope, as they may choose to hesitate until next season!

(13) When planting out the young plants which have survived in tins, it is important to remember that *any* disturbance of the soil surrounding the roots is inclined to retard growth later and can frequently result in the death of the plant. A good pair of sharp metal-cutting shears is a useful adjunct to your tool-shed and if tins are cut vertically on two sides from top to bottom and then opened up carefully, it will be easy to remove the plant with very little disturbance. This does take a few minutes longer, but it can make a difference of years to your results—a crippled plant may remain static and unhealthy for years before it dies, so increasing the gaps you so urgently want to fill, and I think I can say with the agreement of all who read this that even one really good *Leucospermum nutans*, with its hundreds of flowers, more than amply rewards the few extra minutes spent.

(14) It is, I think, most unwise to attempt a wild flower garden in the immediate area of Pines, Gums or Port Jackson trees. These exotics are the worst enemies of South Africa's wild varieties and the sooner you get down to removing existing trees of this nature, the better. If replaced by *Keurboome*, *Rooi Els*, etc., four

or five years will work wonders by way of the re-establishment of shade and vertical shape.

(15) A pond, including a 'swamp', is a valuable adjunct to any wild flower garden, as there are so many varieties of attractive water plants and plants which need boggy conditions and they can be obtained relatively easily and grown without difficulty. If a pond is to be included, it is very important, I think, to keep away from formal shapes, obvious walls and any 'unnatural' feature. If this is done, two or three years will produce something akin to the untouched loveliness of a pool on a Cape mountainside.

(16) If your plot is large enough to avoid trimmed hedges, try by means of mixed shrubs and trees (not in rows) to create the privacy you want. If hedges exist (neighbours), as they so often do in most suburban areas, these can be readily disguised by the careful planting of Silver trees, Proteas, etc.

(17) If an existing, established garden has been terraced, it should be borne in mind that formal terracing is, from many points of view, a hindrance to the effect which you will ultimately want and if the ground you have chosen is level, you will certainly be helped if, with the aid of a bulldozer or a team of garden boys, an effort is made to produce undulations.

(18) Kirstenbosch is hard pressed to supply the huge demands for seeds by members and they would be the first to invite you to experiment with seeds from elsewhere and would encourage you to attempt to collect seed from your own annuals in particular for resowing in the following year. Looking round my own garden to-day, I find that numbers of the most attractive plants have originated in the chance gift of an old Protea head

after it has served its purpose in somebody's vase and my *Protea neriifolia* and *rosacea* have all come from a few old dead heads which were given to me by kind friends.

It is hoped that these brief hints will prove of help to some beginners. I do not pose as anything more than a downright amateur and the 'do's' and 'don'ts' must therefore not be taken too strongly to heart if they happen to run counter to your own ideas. I would be the first to acknowledge that there are many, many ways of approaching the problem of creating a lovely garden.

It is tremendously important when planting to imagine the vistas which will develop with the years by virtue of your efforts. You cannot move perennial shrubs about except at great risk and if mistakes are made initially you are put back for years, all through the lack of a few minutes' thought at the time of planting. For instance, I saw a garden recently in which a *Leucospermum* had been planted four feet to the south of a Keurboom and the latter's chance of ever doing its duty therefore became remote. In the same garden I noticed a large number of *Watsonias* immediately to the south of a *Leucospermum nutans*. Here again, there would be the need for an early removal and a readjustment of the scheme.

In closing, I repeat that the blackboard and the rough sketch are in reality the best means of putting across the endless schemes which can be developed in any area of land and there are literally hundreds of ways in which a plot of only 100 ft. by 100 ft. could be planned. Some are infinitely better than others and a badly laid out wild flower garden can easily remain an unsatisfactory muddle for ever and anon if there is a casual approach at the very beginning.

Notes On Some Rare Stapelias From Namaqualand

By H. HALL

THE plants collectively termed Stapelias, or Stapelieae, are too well known to succulent enthusiasts to require detailed explanation here and it is not the purpose of these notes to do more than dwell, somewhat briefly, upon a few of the lesser-known species that are native to Namaqualand. I am calling them *rare* because they are infrequently met with in the wild state and seldom seen in cultivation, in contrast to quite a number of other plants, rare in the wild, but now cultivated in enormous numbers throughout the world.

Of the twenty genera classified as Stapelieae four occur outside the Union and two others, viz. Luckhoffia and Hoodiopsis, are regarded by some as being of hybrid origin. Their numbers run to several hundred species and the vast majority are native to the Union. With the exception of Frerea, an Indian genus, they are all plants without true leaves, their fleshy stems performing the work of normal leaves, a state of affairs quite common among succulent plants. They all possess a copious, clear sap, mainly acrid and unpleasant-tasting, though the young stems and seed-pods of many kinds are still eaten raw by various native tribes. Even when desiccated and limp by prolonged drought an incision will produce 'bleeding' when, to the casual eye, it would appear too dried up to do so.

They exhibit considerable diversity in form and size. In Duvalia and Piaranthus they are usually compact mats of short-jointed or globular stems. In Stapelia the stems are almost universally four-angled, erect or decumbent, green to highly mottled and smooth to velvety. Trichocaulons have extremely swollen stems, from the size and shape of a golf ball to tall, branching, many-angled thorny stems. Some are markedly subterranean in habit, as in *Stapelia revoluta* (a Namaqualand species), and a few Pectinarias.

The flowers of the Stapelieae all possess a five-pointed corolla, whether widely displayed and starfish-like as in *Stapelia gigantea*, a foot or more across; long and tubular as in Tavaresia; saucer-like as in Hoodia with the conventional five points much reduced; the tips of the 'petals' fused together as in Pectinaria, or minute and clustered together as in some Carallumas. All are very

fleshy, often wrinkled, smooth to densely covered in hair, usually highly coloured. They are, however, probably best remembered for their odiferous nature though some are apparently odourless. Since pollination in the entire group is regarded as strictly entomophilous even the minute and apparently odourless forms evidently emit odours discernible to small insects.

The fruit or seed-vessel is a fairly accurate indication of a Stapeliad even when the plant is not in flower. This is always the conventional twin pod (known to country folk as 'bokhoortjies'), resembling the horns of animals. These contain large numbers of flattened seeds attached to a silky white 'parachute' of hairs, a modification for their dispersal by wind.

Though the boundaries of Namaqualand are somewhat arbitrary so far as Stapeliads are concerned we can regard the territory as stretching from Vanrhynsdorp in the south to the Orange River in the north, and embracing all the area west of this line to the Atlantic coast. While varying widely in its topographical features, with its rugged mountain ranges, sandy valleys and stony plains it is largely semi-arid, becoming extremely so along its northern boundary. Namaqualand is famous for its periodic and indescribable displays of spring flowers but is even better known to science for the enormous range and diversity of its succulent plants, and it can modestly claim a fair share of the Stapelieae, some of which do not occur elsewhere. The following are some of the lesser known kinds chosen for the purpose of these notes.

CARALLUMA APERTA (Mass.) N.E.Br.

The stems of this species are somewhat decumbent, bluntly four-angled, two to three inches long, dull brownish-green to green, often partially subterranean, penetrating beneath shallow stones and wind-blown sand beneath shrublets. The flowers are usually solitary on long (three- to five-inch) stalks, borne on the younger stems, the corolla lobes widely spreading, hence the specific name. The basal half of the 'petal' is usually paler than the apical portion, the latter purplish with dense lines and dots. Since the flowers are about $1\frac{1}{2}$ in.



PLATE 2

SOME RARE
NAMAQUALAND
STAPELIADS

← *Trichocaulon columnare*



Stapelia longiceps
var. *namaquensis* →



← *Trichocaulon cactiforme*

across it has the largest of all the Namaqualand *Carallumas*. Nowhere plentiful, it has a fairly wide distribution from Hondeklip Bay to the Orange River. Like other forms from this region it is highly intolerant of cold, wet weather and heavy, rich soil, but given some shelter from heavy rain and full sun flowers well throughout the summer months.

CARALLUMA PARVIFLORA (Mass.) N.E.Br.

A species with four-angled stems, the angles toothed, bushily branched, less than a foot tall, dark green and slightly mottled. The flowers are only $\frac{1}{4}$ in. in diameter, slightly drooping, from the grooves between the angles, and usually on the younger growths. This species, and the previous one, was first discovered and named by Francis Masson. Masson was one of the earliest collectors of Cape plants, and made two visits to the Cape between 1772 and 1796. He was a professional gardener sent from Kew to collect specimens for the Royal Botanic Gardens. He will always be remembered for the number of *Stapeliads* he discovered and perhaps more so for his *Stapeliae Novae*, containing coloured plates of about forty species, now one of the world's rarest books. Some half-dozen of his plants have not been collected since his day and are frequently referred to as 'Masson's lost plants'. Lots more were not rediscovered for more than a century. *Stapelia parviflora*, as he called it, was one of his 'lost plants' but it is now more or less certain that specimens collected during the last three years are indeed his 'Small-flowered *Stapelia*'. In 1954 I collected two or three specimens under bushes in sandy areas near Groenrivier and again in 1956 on the Knersvlakte, near the main road to the north, some twenty miles north of Vanrhynsdorp, also under shrubs. The tiny, greenish, hairy flowers are insignificant, best admired with a lens.

CARALLUMA VILLETII Luckhoff.

This is a comparative newcomer, having been discovered by Dr. and Mrs. Villet in 1934 in the Vanrhynsdorp district. It is a much-branched, four-angled plant, with prominent teeth on the angles, growing to less than a foot tall. The flowers are pendant, $\frac{1}{2}$ in. across, the tips of the corolla lobes yellow, in marked contrast to the wine-coloured centre, the lobes edged with purple hairs. It is one of the rarer species for in some twelve visits to Namaqualand I have seen only four plants, the first in 1948 near Khamieskroon, some fifty miles north of its type locality. In 1956 I collected one plant at the same time and place as *Caralluma parviflora*, south of Nuwerus,

two very rare species under adjacent bushes, scarcely six feet apart. This was a most exciting event and since both plants were in flower was not to be lightly dismissed—as so often one is tempted to do when not in flower—as 'probably another *Carall. hottentotum*', a most ubiquitous Namaqualand species. It is usually by sheer chance that one makes such finds, since one can peer into a thousand similar shrubs and fail to see another specimen of such rarity.

In cultivation it is very prone to decay unless care is given, and cuttings of the branches are rather slow to root.

CARALLUMA UMDAUSSENSIS Nel.

This interesting species was discovered by H. Herre in 1929 at Umदाus, a lonely area in the Richtersveld. When not in flower it is barely distinguishable from *C. aperta* or *Stapelia pedunculata*, the same-shaped stems and habit, and their distribution also overlaps. At Ratelpoort, between Springbok and Steinkopf, I saw a plant with about fifty branches, which had filled a large rock crevice and was receiving some shade from the mid-day sun. The flowers are cup-shaped in the centre with spreading corolla lobes, about $\frac{3}{4}$ in. in diameter, slightly nodding, on short stalks. There are conspicuous reddish stripes radiating from the middle of the flower, and extending up the lobes in some plants, the ground-colouring mainly yellow-green but rather variable. It is somewhat difficult to keep alive in cultivation.

CARALLUMA PRUINOSA (Mass.) N.E.Br.

A bushily branched species with four angled stems of a dull purple to greyish colour, from ten to twenty inches tall, the branches scarcely $\frac{1}{2}$ in. thick and tapering to the tips. The angles are very blunt with short, hard teeth. The flowers, which appear towards the tips of the stems, are freely produced, between the angles, on healthy plants and are less than $\frac{1}{2}$ in. across, star-shaped, densely pubescent on the inner face with white hairs. After many searches, and having seen but three specimens in ten years, I regard this as one of the rarest species, though the last specimen was in a largely unexplored region in the mountainous area in the north-east Richtersveld which might well contain many more. The two previous specimens were growing at Anenous and Spektakel, to the west of Springbok. Francis Masson stated that this plant flowered at Kew in 1797 'whose flowers he never saw in Africa'. Precisely where in Namaqualand he saw the 'Frosted *Stapelia*' will never be known but it is remarkable that it should have survived the long

journey and revived to flower in Kew. It is far from easy to keep alive and I have never succeeded in rooting any of its branches.

ECHIDNOPSIS FRAMESII Wh. & Sl.

The genus *Echidnopsis*, though comprising only some eight species, is distributed from Arabia to southern Africa, closely allied to *Caralluma*, differing only in having tessellate stems.

'Ross Frames' *Echidnopsis* was discovered by P. Ross Frames in 1929 in the Vanrhynsdorp district. The stems are bluntly six-angled, green, decumbent with age, usually less than a foot long and partially subterranean in habit. The blunt angles of the stems are divided by transverse furrows which, with the furrows between the angles, produce the tessellate appearance. It invariably seeks the shade of shrublets, forming a tightly locked mass with the stems of such shrublets.

The flowers are about $\frac{1}{4}$ in. in diameter on short, slender stalks, freely produced near the apex of the stems. Though small the flowers are very charming under magnification, the corolla lobes reddish to purplish, but somewhat variable. Specimens have been recorded from widely scattered points some miles north of Vanrhynsdorp but it is evidently a rare species, nor have I ever seen one bearing seed-pods in the wild which might account for this. Here I should like to refer to another species, *E. serpentina* (Nel) Wh. & Sl., collected near Vanrhynsdorp in 1931 which is said to differ from *E. framesii* only in the number of stem angles. My view, however, is that the number of angles on the stems of *Stapeliaceae* are far from constant. During a plant-collecting trip with Mr. Thudichum in 1954 we discovered a colony of *Echidnopsis* between Loeriesfontein and Nieuwoudtville. It was possible to record plants bearing stems with six, seven, eight and even nine angles. All were flowering very well and exhibiting considerable variation in colouring. This area is far to the east of the Knersvlakte and at a considerably higher elevation. Before leaving this *Echidnopsis* complex I would add that we made a courtesy call at the small police post at Nuwerus where, to my astonishment, among a few succulents planted in the small garden, was an enormous *Echidnopsis framesii*, a most remarkable specimen in that all its stems were fasciated or 'cristate'. This is a state of affairs not uncommon among succulents, highly prized by some, regarded as monstrosities by others. I did ask the sergeant where it was found and was told, 'Out there in the veld', accompanied by a

wave of a brawny arm which seemed to embrace most of the 400 square miles of the Knersvlakte!

HUERNIA NAMAQUENSIS Pillans

There are about fifty species belonging to the genus *Huernia*, widely distributed throughout the Union, into South-West Africa and Southern Rhodesia. The flowers are readily distinguished from all other *Stapeliads* by their ten-pointed corolla; the conventional five main points being supplemented by smaller ones in their angles.

Of the three or four species recorded from Namaqualand *Huernia namaquensis* has the daintiest flowers. The stems are short, four- or five-angled, usually suffused with reddish brown which is, in part, due to exposure, since it often occurs fully in the open, or filling rock crevices in tight masses. The flowers are bell-shaped, about 1 in. in diameter, on short stalks which are curved at the apex so that the flowers are always facing modestly downwards. Pale primrose in colour the inner face is densely spotted with purple or red, extremely variable though in the size of such ornamentation. Some plants have, however, entirely immaculate flowers. Furthermore, much variation exists in the colouring of the corona lobes in the centre of the flowers. This pretty species occurs at a number of places near the coast between Grootmis and Alexander Bay, a region of very low rainfall but where sea fogs are prevalent. Although, as mentioned above, it often grows in full exposure, it must be remembered that in its native habitat the sun is frequently tempered by the sea mists and the almost constant cool breezes from the sea, and thus requires the usual shelter from our summer sun further inland. This species is also found scattered over parts of the Richtersveld and appears to intergrade with the more recently described *Hernia herrei*, another variable plant, if indeed the two do not constitute one widespread and variable species. In cultivation it requires a poor, very sandy soil and little water at any time.

PECTINARIA ARTICULATA Haw.

The genus *Pectinaria* contains about eight species, all from the Cape Province, some having a remarkable subterranean habit. With their very small flowers, coupled with their habit of seeking the shelter of dense bushes, they are very inconspicuous. 'Haworth's Jointed *Pectinaria*' was discovered by Thunberg in his travels somewhere near the Roggeveld about 1773. The plant forms dense tufts of tightly locked, jointed stems about $1\frac{1}{2}$ in. long, knobbly, brownish green. The flowers are

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Botanical Society of South Africa

CALENDAR OF MEETINGS FOR 1957

Tuesday, 26th February, 8.15 p.m. Lecture Hall,
Kirstenbosch.

'Garden frames and Shade houses.' Talk and
demonstrations by Mr. A. J. M. Middlemost.

Tuesday, 26th March, 8.15 p.m. Lecture Hall,
Kirstenbosch.

Annual General Meeting, followed by 'Proteaceae.'
Illustrated talk by Professor H. B. Rycroft.

Tuesday, 28th May, 8.15 p.m. Lecture Hall, Kirsten-
bosch.

'Silver Tree Disease at Kirstenbosch.' Illustrated
talk by Miss D. L. Olivier.

Saturday, 29th June, 8 p.m. New Film Auditorium,
Technical College, PRETORIA (Vermeulen
Street entrance).

'The Botanical Society and the National Botanic
Gardens of South Africa.' Illustrated talk by
Professor H. B. Rycroft.

Tuesday, 10th September, 8.15 p.m. Lecture Hall,
Kirstenbosch.

'Hints on staging exhibits at the Wild Flower Show.'

Saturday, 21st September, 3 p.m.

Anniversary Meeting, Karoo Garden, Worcester.
Tour of Garden by Mr. J. Thudichum, Curator.

Saturday, 5th October, 11 a.m.

Annual Gathering of Members, New Lawn,
Kirstenbosch. Followed by WILD FLOWER SHOW,
Lecture Hall, Kirstenbosch.

Sunday, 6th October

Continuation of WILD FLOWER SHOW. Lecture
Hall, Kirstenbosch.

Saturday, 19th October, 3 p.m.

'Visit to a Member's Garden.' Mr. and Mrs.
A. J. A. Simpson, Valley Head, Constantia. (Cars
meet Kirstenbosch main entrance 2.45 p.m.)

Saturday, 16th November, 3 p.m. The Nursery, National
Botanic Gardens, Kirstenbosch.

Practical demonstrations on seed collecting and
cleaning.

Members are cordially invited to bring their friends along to the above Meetings.

*Have Your Friends Joined the
Society Yet? If Not, Why Not?*

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$\frac{1}{4}$ in. across, the tips of the petals fused together; insignificant, curved downwards, from the tips of the stems. The only specimens I have seen were just outside the town of Springbok. They were heavily grazed by goats and, like many more shade-loving plants, doomed when the overgrazed bushes die out. Thunberg related that this plant was eaten by the Hottentots.

PIARANTHUS CORNUTUS N.E.Br.

Of the fifteen known species of *Piaranthus*, about five are recorded from Namaqualand. The generic name literally means 'fat flower' though their flowers are scarcely more fleshy than many other Stapeliads. *Piaranthus cornutus*, the 'Horned *Piaranthus*' from the prominent corona lobes in the middle of the flower, occurs in the Steinkopf district. The stems are short-jointed, forming dense mats, brownish green in colour. The flowers form in small bunches at the tips of the young stems, 1 in. in size, bright yellow on the inner face and heavily mottled with dark red. In 1949 I came across an amazing specimen at Ratelpoort, between Springbok and Steinkopf, growing beneath a venerable 'Kokerboom' (*Aloe dichotoma*). This plant had formed a solid carpet of tightly packed joints, measuring about 5 ft. by 3 ft., 4 or 5 in. deep where it was pressing up against the trunk of the *Aloe* in its attempts to expand, growing ever outwards as is its habit. The outer edges were covered with their starry flowers, a wonderful sight and an outstanding specimen. Apart from this giant I have seen very few other specimens in Namaqualand.

STAPELIA PACHYRHIZA Dtr.

The 'thick-rooted *Stapelia*' was discovered by Prof. Dinter in South-West Africa in 1922. More recently it has turned up in the very sandy coastal area to the south of Alexander Bay, the specimens I saw growing in full sun and half buried in the loose dry sand. The roots are very stout and numerous, penetrating deep into the sand in their search for moisture, thicker than any other species I know. The stems are 2 to 3 in. long, perhaps stunted from exposure, thick, dull brownish black. The flowers are about 3 in. in diameter, dull reddish black in colour, the lobes fringed with reddish hairs. It is, however, barely distinguishable from *Stapelia gemmiflora*, a plant with a wide distribution in the Cape Province.

TRICHOCAULON COLUMNARE Nel

Of the two dozen known species of *Trichocaulon* this differs from all in its long and slender stems, from 6 in. to 2 ft. in height, branching freely above ground and also forming many long, underground stems becoming

erect as they reach the surface. These stems are greyish green, seven- to nine-angled with an impressed groove between the small tubercles along these angles. The flowers are small, scarcely $\frac{1}{4}$ in. in diameter, freely produced in small bunches, especially near the ends, yellowish green with reddish to purple spots. It was discovered by H. Herre in the Richtersveld in 1929. Sometimes old stems become reclining, perhaps when the supporting shrubs have died away and then they look rather like green snakes, an ever-present possibility in the remoter parts of the Richtersveld. The best specimen I saw consisted of about forty stems, carrying myriads of tiny flowers. This species takes more kindly to cultivation than do many of the more globular kinds.

From the foregoing remarks it should be clear that the *Stapeliads* dealt with all occur in arid surroundings. Their scanty supply of rain per annum falls mainly in winter and, as likely as not, in a matter of four or five days. For the remainder of the year the air may be dry, with high summer temperatures except near the coast, and cloudless skies. In the main they receive partial shade from shrubs and rocks. Perhaps of greater importance is that their root systems are kept much cooler with such protection. During the winter months the night temperatures are often quite low but actual frost is uncommon.

In cultivation, therefore, it should be remembered that they will endure very long spells of dry weather but will speedily die during cold, wet weather. In regions of high winter rainfall, such as at Kirstenbosch, it is quite impossible to cultivate them out of doors all the year round unless some protection from rain is provided. In summer partial shade is beneficial. They grow best in a light, well-drained, sandy soil and a warm aspect. Owing to their vigorous root system and their inclination to be ever wanting to root outwards into fresh ground, such plants are never very contented in pots or other containers. Their roots become too confined, too hot and dry. Under such conditions they speedily become infested with insect pests, a sure sign of bad health. They should be encouraged to remain as dormant as possible in winter, to grow in summer when they will produce their flowers.

It is wise to make cuttings of the younger parts of the plant each year, allowing the cuttings to dry for a few days in shade before planting. Their seeds germinate in a few days after sowing and usually make rapid growth, provided, of course, they are given the same care and attention as one would for other seedlings of a similar nature.

South African Plants on the Baltic Sea

By S. E. HELLERSTRÖM (Nettraby, Sweden)

MOST people are apt to think the Swedish climate too harsh for South African plants. Indeed, your shrubs and perennials will seldom survive our winters, whereas many species of bulbs will do so with a slight covering of leaves. Other bulbs must be lifted in the fall, and there is a wide range of plants, that can be treated as annuals.

If asked the reasons, why I have concentrated on Cape flowers, I will answer:

They are most free-flowering plants with rich and lovely colours. They flower persistently for long periods, when other flowers are scarce and they are surprisingly resistant to early and late frosts and to the scourge of our gardens the drought of May and June. Ours is a sunny climate, and they love the sun.

If at the end of March we sow *Dimorphothecas* and *Ursinias* in the open, we will have our garden ablaze with those fine daisies in June when spring flowers have passed. If in May we plant seedlings of *Gazania* and *Arctotis* we will enjoy exquisite flowers when otherwise autumnal gloom broods over our garden. It is just the same with bulbs; Tulips and Lilies for May and June, the South Africans for late summer and fall.

When our trees stand out black and nude against the bleak November sky, when in most gardens there is nothing to be seen but withered leaves and black earth, then we can relish the gift of South Africa, when in the moist silvery air the warm colours of *Nerine* and *Gazania* sparkle.

EDITOR'S NOTE:

It is most interesting to receive such reports from our overseas members, and we would welcome more contributions of this nature.

It might be of interest to add here that there are approximately 300 members resident overseas.

How and Why we must save the Wild Flowers of South Africa

By RICHARD MOREY

Winning Essay for J. W. Mathews Floating Trophy Competition, 1956

IT is becoming increasingly evident that South Africa's wild flowers are rapidly diminishing. There are many factors which contribute to this, with the result that they threaten to disappear entirely from South Africa's flora, and will thus be lost for ever, both in an aesthetic sense and also to scientific and natural research. Their colourfulness and variety have proved a great source of attraction, both to tourists from abroad and to South Africans themselves.

As has happened with animal species that have been persecuted until extinct, so is this danger to wild flora becoming more than a mere possibility. Unless strict measures are taken without delay, this will happen within a few years.

One of the main contributory factors is the indiscriminate picking of wild flowers. Who has not stopped to admire the dazzling flowers offered for sale by the flower-sellers in Adderley Street, Cape Town? Yet a large part of this array is constituted by wild flowers, which have often been picked wantonly. This practice is also followed by door-to-door hawkers, who are not concerned with the future of our flowers, but with making a living.

Many people delight in having small rockeries in their gardens, and often make use of motoring trips to collect new specimens. This also applies to tourists, since they pick them as souvenirs of their visits.

This indiscriminate picking, which often results in pulling the plant up, roots and all, does not allow the wild flowers to multiply sufficiently to maintain their species. It should be noted that few wild flowers will be able to survive when they are transplanted while in flower, especially to places with climatic conditions which differ from their natural surroundings. How many of the *Stapelia* and *Mesembryanthemums*, which are great favourites in rockeries, are adequately equipped to stand up to new environments?

If wild flowers vanish from our flora, their loss will undoubtedly affect the tourist traffic considerably.

Scientific, biological and medical research workers have been greatly assisted in their work in the past by

the products or components of wild flowers. Some of these have proved of great benefit to mankind. Bitter aloes, for example, have been found of great use in preventing small children from biting finger-nails! I know of several instances where this has cured this bad habit.

Lovers of nature, especially, would feel the loss of these beautiful flowers very strongly. They add charm and colour to their surroundings, especially where South Africa's natural beauty has been unspoiled by man. In the midst of the ever-increasing turbulence of modern life, flowers of every description serve as a stable anchor on which we can depend to help restore our scattered thoughts and emotions.

Fortunately, there are several methods by which this danger can be averted.

The wanton destruction of flowers by hawkers and vendors, which I mentioned earlier, can be curbed, if not completely stopped, in several ways. The number of permits for the selling of wild flowers should be restricted and made more difficult to obtain. As happens frequently in connection with animals, picking of wild flowers should be permitted only in certain seasons, and not indiscriminately. People ought to be warned of the danger they are helping to cause and shown how to prevent it.

Large-scale propaganda should be instigated, both for children and for adults.

Most children have an inherent love of nature and this should be encouraged. Nature study, which is at present a non-examination subject in primary schools, should be made compulsory. Films depicting South African flora can be shown to children, and flower-identifying excursions in the veld can be introduced. Soil conservation, and the importance of wild flowers and grasses in binding soil, should be stressed, especially as this topic is one of South Africa's gravest problems.

Exhibitions of rarer flowers, especially those in danger of dying out, could be held throughout the Union, with each district stressing its own problems.

Adults could be given more intensive propaganda by making use of the radio, the press, films, advertisements, posters, and so on. Flowers on the danger list could be exhibited at publicity offices. Tourists and immigrants often commit destruction through ignorance. New-comers should be made aware of the fact that many flowers are protected through the above mediums, and especially by the use of posters. In addition, an extremely satisfactory method of propaganda was demonstrated in 1954 when the Government issued a set of postage stamps depicting animals found in South Africa; this was an unqualified success, and I feel sure that a similar venture with flora would have a similar effect.

The flowers which are most endangered should be placed on a protected list, in the same way as royal game, for example, is protected from destruction by law. If such a law were to be passed, it should be enforced with the greatest severity, and fines for conviction under it should be as heavy as possible.

Then flowers like the Disa, from Table Mountain, which was once flourishing, but has now almost died out, would be saved and preserved for posterity.

Gardens like those at Kirstenbosch should be established with a view to preserving as many species as possible. The drawback here would be that climatic conditions differ between a plant's natural surroundings and its cultivated surroundings.

Natural factors such as drought and wind cannot be prevented from affecting the wild flowers, although many varieties, e.g. the *Mesembryanthemums*, are adapted to such conditions.

Although it would be rather too vast an undertaking, men could be trained to patrol the most likely danger-areas and prevent damage being done. The Government is appointing specially qualified officers to study the problem of floral conservation. Forestry officials should have this duty included in their work. Farmers and country residents in particular could also assist in this direction. Urban housewives should refuse to purchase flowers from the door, and this would stop the picking of wild flowers for hawking.

Competitions and essays would also assist in bringing the flower danger to public notice.

Essay competitions like this one with its handsome trophy will benefit South Africa a great deal.

NINTH INTERNATIONAL BOTANICAL CONGRESS

The Ninth International Botanical Congress will be held in Montreal, Canada, from 19 to 29 August 1959, at McGill University and the University of Montreal. The programme includes papers and symposia related to all branches of pure and applied botany. A first circular giving information on programme, accommodation, excursions, and other detail will be available early in 1958. This circular and subsequent circulars including application forms will be sent only to those who write to the Secretary-General asking to be placed on the Congress mailing list:

Dr. C. Frankton
Secretary-General
IX International Botanical Congress
Science Service Building
Ottawa, Ontario
Canada.

The Cultivation of some *Ericas* in New Zealand

By W. R. STEVENS (Wanganui, New Zealand)

I MENTIONED in the last Journal that though we grow a fairly good selection of South African plants, our principal interest lies in those that flower from May to September, and can be used for cut flowers. Naturally many of the *Ericas* come into this category, but from a cultural point of view they present quite a few problems. This is particularly the case here, as theoretically our loam over clay should not be at all suitable for them. But, surprisingly enough, there are quite a number of species that thrive here, and a number which do moderately well. By the addition of large quantities of sand we are able to lighten our soil and provide a looser root run. We do not as a rule get more than five degrees of frost, and get through most winters with about three-and-a-half degrees.

By far our largest planting is composed of *Erica canaliculata*, which is grown in New Zealand under the name of *E. melanthera*. Despite all efforts to induce gardeners to use the correct nomenclature the plant remains under that name and is likely to continue to do so! Over a hundred years of usage make a difficult hurdle, and I am afraid that the mistaken name given by Loddiges is going to be used for ever. But under whatever name it is grown, it is the most satisfactory South African species grown in New Zealand. It has two special attributes, viz. it flowers in May, June, July and it is long lived. I have seen plants over thirty years old and 10 ft. high, in perfect health and still flowering freely. An annual pruning, starting as a young plant, seems almost to be necessary, otherwise it is inclined to become somewhat leggy.

Of recent years most plants in New Zealand have suffered from a complaint called bud-drop. I use the word complaint rather than disease, because our Department of Scientific and Industrial Research does not seem to be able to isolate any causal bacteria or fungus. This bud-drop occurs at a very critical stage, just when the flowers are due to open, with the consequent loss of all bloom. The plants themselves do not appear to suffer in any way and immediately after flowering time will rush into growth, as if there was nothing the matter with them. We have managed to

control this 'complaint' with a combination of various sprays, but unfortunately we do not know which one spray is the specific control. There is a point which may have a bearing on the matter. So far as I know—and I have had extensive experience with this plant—it has never been known to produce seed in this country. This means that we are growing a clone, as all propagation has been from cuttings. It may be that this clonal propagation over so many years has caused the plant to lose some degree of constitution. Further it may be the reason why the plants never set seed. I am informed that the natural habitat of *E. canaliculata* is in the George and Knysna areas but so far I have never seen seed of it offered in any South African list. Possibly some of your members in those districts could tell me whether it sets seed freely in its native state and if so does it regenerate easily?

Another species that is satisfactory is *E. conica*. It has rather short stems for cutting but possesses a charm all its own. Its warm pink flowers appear in late winter and are very popular with florists. Unfortunately it is not long lived, and we need to replant every few years. The flowers are easily damaged by frost, a factor limiting its general value. It makes a vigorous plant here, up to three feet high and as much across.

Erica oatesii is another winter-flowering species we grow in quantity, and in the dull grey winter months, its warm red flowers are a joy to behold. While it is not exactly a robust grower, it makes quite respectable annual growth, and responds well to pruning. Fortunately it sets seed freely, and is very easily raised. In fact thousands of plants are sold annually in this country, particularly in those districts where frosts are light.

Erica regia var. is also grown for cutting, although this species does not flower until early October. But a bunch of its beautiful varnished flowers would be popular at any time of the year. It has rather a short life with us, about four years, but whether this is due to our clay subsoil or just a natural failing I am unable to determine. It does not set seed with us so fresh stock is raised from cuttings.

Erica sessiliflora on a two-year planting seems promising, but it is too early to tell yet whether it is going to flower freely enough to warrant a large planting. The plants are vigorous, up to two feet high, and show no suggestion of susceptibility to frost.

Erica patersonia is a newcomer, and we have about fifty plants on trial. The flower buds are showing as I write, in early May, and we are looking forward to seeing it. The habit of growth is columnar and very attractive, but whether it will stand cutting is something for us to find out.

There are a number of other species grown for cut flowers, but as I am suspicious of their correct nomenclature, I hesitate to mention them. This is an instance where a published census of Cape plants is badly needed.

We could then ascertain if you do have species of the names used here. I am sure that many of the names under which they are sold in New Zealand have never appeared in any botanical literature!

In conclusion may I say that I am well aware that my heavy soil is not the ideal medium in which to grow *Ericas*, and it is perhaps unfortunate that I have a real fondness for the genus. What it really amounts to is that if I try a sufficient number of species, some of them will, like those mentioned here, prove to be quite happy in my conditions. It is useless to try to emulate the conditions under which they thrive in South Africa. In any case, who can lay down exact laws for a plant's requirements?

EDITOR'S NOTE:

Readers will find additional notes on the subject of *Ericas* on page nine of this issue.

BOOK REVIEW

Trees of Central Africa. Painted by Olive H. Coates Palgrave, descriptions by Keith Coates Palgrave and photographs by Deric and Paul Coates Palgrave. Printed at the University Press, Glasgow, by Robert MacLehose and Co., Ltd., for the National Publications Trust, Salisbury, Southern Rhodesia. 1956. 466 pp., 221 illus., 84s.

This is the first publication by the National Publications Trust, a body which was formed in 1954, and if it is a sample of others which are to follow we can look forward to seeing publications of a very high standard. The Trust is to be congratulated on the production of a work of exceptional merit.

Trees of Central Africa, which has recently been published, is very much the result of a family effort. Four members of the same family contributed to the book and made a great success of it.

Botanical works with a special appeal to the layman in southern Africa have been appearing at an accelerated rate during the last decade and it is encouraging to note that books of this type are still being published. The latest which is being reviewed here is one of the best.

The origin of the South African flora is not known with any certainty, but there is evidence that a large proportion of plants indigenous to this country were derived from tropical ancestors which flourished in the area with which this book deals. A book on the trees of central Africa, therefore, should be of special interest to all South Africans.

The Federation of Central Africa, comprising the two Rhodesias and Nyasaland, has a great assemblage of flora and is known particularly for the beauty of its trees and shrubs. The Cape also, is known far and wide for the beauty and diversity of its flora and several books on this subject, illustrated by excellent plates, have been published. The majority of Cape plants, however, are

no larger than shrubs and now, the publication of a book on trees is very welcome.

No less than 110 species of trees growing naturally in the Federation are excellently illustrated. A feature of the plates is that in every case the flowers, fruit, branch and leaves are masterfully portrayed in colour, and black-and-white photographs illustrate the bark and the whole plant in its natural habitat.

This book will be of particular interest to people in the Central African Federation but also to those in South Africa because about a third of the trees illustrated and described occur in the Union as well.

To the visitor and to the non-specialist the identification of Central African trees presents a problem because the leaf formation and arrangement is very similar for a large variety of species. Purely botanical descriptions are of little value to these people but the plates portray the subtle differences very clearly, making the book a useful companion to anyone wishing to know the names of the trees.

From a botanical point of view the authors appear to have availed themselves of the latest decisions on nomenclature and the plant names are those accepted by botanists to-day.

This publication should satisfy the interests and demands of the botanist and the layman in that the family name, genus and species are given; then follows the usual English name and the names accepted by the Africans of various tribes in the Territory. For each species an adequate description satisfies the desires of the botanist and the uses—medicinal and otherwise—are also included. The book includes a glossary and index of technical terms and a comprehensive index consisting of subjects, botanical names, common names and place names.

The book is highly recommended and should find a place on the shelves of everyone who is interested in Africana and the indigenous flora of this continent.

H. Brian Rycroft

THE BOTANICAL SOCIETY OF SOUTH AFRICA

ANNUAL REPORT FOR THE YEAR ENDED 31 DECEMBER 1956

YOUR Council has pleasure in presenting the Forty-third Annual Report of this Society for the year ended 31 December 1956.

MEMBERSHIP. Full membership of the Society is now 2,824, inclusive of 191 Life Members. During the year 438 new members were enrolled. Resignations and deaths totalled 74, and 206 members who were two or more years overdue with their subscriptions were struck off.

FINANCIAL. The balance sheet of the Society for the year details, Subscriptions received £3,158 3s. 11d., Donations £142 6s. 0d., Interest on investments £157 14s. 0d., making a total of £3,458 3s. 11d. In addition, £150 was received in respect of new Life Members and was credited to the special fund. Expenditure during the year was £1,155 5s. 9d. leaving a balance of £2,302 18s. 2d. which forms the Society's grant to the Trustees of the National Botanic Gardens in respect of the year. This is an increase of £179 4s. 11d. over the previous year. Fixed deposits totalled £2,539 14s. 7d. Cash in the bank £3,061 3s. 4d.

RETIREMENT OF PRESIDENT. Your Council sincerely regrets to record the resignation of Mr. W. Duncan Baxter, President of the Society since 1936, and a member of the Council since the Society was formed in 1913. The Council hereby records its deep appreciation to Mr. Baxter for his long and faithful service to the Society over the years. At the Annual General Meeting of the Society held in March, Mr. Dudley R. D'Ewes was unanimously elected to succeed Mr. Baxter as President. Mr. D'Ewes in accepting this office paid high tribute to Mr. Baxter, saying that he spoke not only as a member of Council, but also as a Trustee of the National Botanic Gardens of South Africa when he said how greatly the wisdom and moderation of Mr. Baxter's work was appreciated. The Council is happy to record that Mr. Baxter will continue to serve as one of the Society's nominees on the Board of Trustees of the National Botanic Gardens of South Africa.

EXEMPTION FROM TAX. Application was made and granted, which exempted from tax all donations made to or by the Botanical Society.

'WILD FLOWERS OF THE CAPE OF GOOD HOPE.' Sales of this book amounted to £869 4s. 6d. during 1956. An amount of £1,350 which represented surplus cash in respect of books sold was paid over to the Trustees of the National Botanic Gardens of South Africa in accordance with the constitution of the Society. Only 4,081 books remain to be sold out of the 10,000 printed in 1952.

ADVISORY COMMITTEES. The Botanical Society continued its interest in the affairs of similar bodies and has been invited on a number of occasions to appoint representatives on the various committees.

VISITORS TO KIRSTENBOSCH. The Society's office at Kirstenbosch has continued its important liaison between the visitors and the Gardens during 1956. Many of these, making their first visit to Kirstenbosch, have not only become members, but have gone away so inspired by their visit that they have encouraged others far afield to join our membership.

'JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA', Parts XLI/XLII 1955/6, edited by Professor H. B. Rycroft was published during the year. For many years the Journal has been published during the year following the date on the cover. In order to bring it up to date the volume published during the year was for 1955/56.

HONORARY LIFE MEMBERS. In appreciation of their services to the Botanical Society and also to the National Botanic Gardens, the Council bestowed the honour of Honorary Life Membership on Mr. W. Duncan Baxter, Dr. L. Bolus and Miss E. L. Stephens.

CAPE FLATS FLORA RESERVE. During 1956 a sum of £127 5s. 0d. was donated by members of the Botanical Society to this Reserve, all of which has been handed over to Miss E. L. Stephens who presented the Reserve to Kirstenbosch. In addition, some members sent donations direct to Miss Stephens.

WILD FLOWER SHOW. This show, the second of such to be sponsored by the Council of the Botanical Society, was held on 6 and 7 October. We were honoured by the presence of Mr. W. J. B. Slater, Provincial Secretary, who performed the opening ceremony. Owing to unseasonable weather conditions there were

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not quite as many entries as in 1955, but in spite of this the show proved to be very successful, particularly in interesting non-members in the cultivation and preservation of our flora. Net receipts of the show were £56 13s. 4d. as against £31 6s. 9d. in 1955.

MEETINGS OF THE SOCIETY. The following were held:

28 February. *Lecture Hall, Kirstenbosch.* 'How to sow Kirstenbosch Seeds.' Talks and demonstrations.

20 March. *Lecture Hall, Kirstenbosch.* Annual General Meeting, followed by colour slides of 'Some Monocotyledons of the Western Cape', shown by Dr. W. P. U. Jackson.

15 May. *Lecture Hall, Kirstenbosch.* 'My work at Kirstenbosch.' Talk by Miss M. E. Johns.

15 September. Visit to Darling Flora Reserve.

22 September. Anniversary Meeting, Karoo Garden, Worcester.

6 October. Annual Gathering of Members and Wild Flower Show.

7 October. Continuation of Wild Flower Show.

27 October. Visit to Isoetes Vlei, Cape Flats. Talk by Miss E. L. Stephens.

10 November. Visit to Mrs. C. Barlow's garden, 'Vergelegen', Somerset West.

Special thanks are recorded to all helpers who kindly gave their services at these meetings. Also to Mr. and Mrs. J. Thudichum in respect of the function at the Karoo Garden and also to Mr. and Mrs. A. J. M. Middlemost for their help at the Annual Gathering and the Wild Flower Show.

Mention must also be made and sincere thanks extended to Mrs. C. Barlow, who so kindly entertained more than 300 members to tea when we visited her lovely garden and home. Sincere appreciation is also extended to all those who formed volunteer work parties to clear the wattles prior to the meetings at Darling and Isoetes Vlei.

SEED DISTRIBUTION. The Society continues to receive many reports on the excellent germination of seeds issued to members by the National Botanic Gardens. Letters have been received from many parts of the world. During the year 17,563 packets of seeds were distributed free of charge to members.

ELECTION OF OFFICE-BEARERS. The following were elected at the Annual General Meeting of the Society:

President: Mr. Dudley R. D'Ewes.

Vice-Presidents: Mr. C. J. Sibbett, Professor H. B. Rycroft, Rt. Hon. E. F. Watermeyer.

Members of Council:

Dr. A. J. Ballantine	Dr. G. J. Lewis
Mr. W. R. Baylis	Mr. J. S. Linley
Dr. G. J. Broekhuysen	Dr. C. A. Lückhoff
Mr. M. Clough	Mr. S. Macpherson
Dr. A. L. Geyer	Miss K. Murray
Mr. C. R. Gohl	Mr. H. Porter
Professor W. E. Isaac	Mr. L. A. Solomon
Dr. W. P. U. Jackson	Miss E. L. Stephens
Miss M. E. Johns	Capt. M. F. Stern
Dr. M. R. Levyns	Mr. G. E. Williamson

Mr. C. J. Sibbett was re-elected Chairman at the first meeting of Council.

APPRECIATION. The Council of the Botanical Society of South Africa tenders grateful thanks to the Press for its willing co-operation at all times in reporting the activities of the Society. Sincere thanks are also recorded to the Cape Provincial Administration by whose courtesy meetings of Council were held in its rooms during the year.

C. J. SIBBETT
Chairman

(MRS.) W. N. HALL
Hon. Secretary/Treasurer

Wild Flowers Protection Section Committee

ANNUAL REPORT FOR THE YEAR ENDED 31 DECEMBER 1956

FINANCIAL. Total receipts of the section amounted to £518 17s. 1d. This included £282 6s. 5d. received in subscriptions, £56 3s. 4d. proceeds of the Wild Flower Show, £150 in respect of the Cape Provincial Administration grant-in-aid, and £30 7s. 4d. interest on investments. Assets of the section at the year end stand at £292 18s. 4d. balance in the bank, and £661 3s. 1d. placed on fixed deposits.

INSPECTION REPORTS. Mr. H. D. W. Meyer, appointed officer of the section, details that during the year he was responsible for bringing 127 offenders against the Wild Flowers Protection Ordinance before the courts. This is an increase of 10 over 1955. The increase is probably due to the fact that Mr. Meyer, who on most occasions was accompanied by one or more officials from the Cape Provincial Administration, was able to cover a wider field, thanks to the transport provided. For these facilities, and to the officers themselves, the Wild Flowers Protection Committee records grateful thanks.

A total of £229 10s. 0d. was paid into the courts in fines, an increase of £61 over 1955. Fines ranged from 10s. to £5. Many registered wild flower nurseries and their sites were visited and reported upon. Intensive investigations were directed against one nurseryman suspected of contravening the regulations over a long period of time. These investigations resulted in a prosecution in court and the cancellation of his certificate of registration. Special thanks are due to Messrs. Meyer and Linley, and also to officials of the Cape Provincial Administration, for their work in this connection.

Generally speaking, the sale of wild flowers by registered nurserymen and their sites is very satisfactory. Warnings have had to be given to a number of sites for not keeping proper records however.

The illegal selling of wild flowers by children and others along country roads continues to be investigated and action taken where necessary.

During the patrols of country roads 38 people were apprehended for picking wild flowers within 50 yards of the centre of the roads, and others for actually picking in reserves. These offenders were fined £1 to £5.

Visits were made to the properties of 13 persons who

had applied to be registered as wild flower nurserymen. Of these 11 were recommended.

NATURE CONSERVATION ADVISORY MEETING. Professor H. B. Rycroft, Chairman of the Wild Flowers Protection Committee, attended this meeting in Oudtshoorn in April. Further recommendations of the Committee in respect of the new Wild Flowers Protection Ordinance now being drafted, were submitted.

PUBLICITY. The aim of the Committee continues as always to guide and educate, as against prosecute, in the matter of the protection of our wild flowers. It is therefore very encouraging to note that the general public is becoming more and more interested in our wild flowers. This is evidenced by the large numbers of inquiries dealt with each year. One of the most effective and popular ways to keep this interest stimulated is by the showing of films and slides. With this in mind and funds being available, the Committee purchased a film and a slide projector during the year. These have already been used to great advantage by Professor Rycroft who has given illustrated lectures outside the actual precincts of Kirstenbosch. The Committee plans to build a comprehensive film and slide library.

MEMBERS OF THE COMMITTEE, 1956. The following were elected by the Council of the Botanical Society:

Professor H. B. Rycroft	Mr. H. N. Porter
Miss K. Murray	Mr. H. D. W. Meyer
Mr. J. S. Linley	Mr. C. R. Gohl
Miss M. E. Johns	Mr. C. J. Sibbett
Mr. V. Karg	Mr. S. Macpherson

Professor Rycroft was re-elected Chairman at the first meeting of the Committee.

THANKS. Special thanks are recorded to the daily Press for its interest in, and the reporting of, our activities during the year. This particular form of publicity helps us greatly and does a great deal to encourage the interest and appreciation of our wild flowers.

H. B. RYCROFT

Chairman

(MRS.) W. N. HALL

Hon. Secretary/Treasurer

THE BOTANICAL SOCIETY OF SOUTH AFRICA

BALANCE SHEET as at 31 DECEMBER 1956

[illegible]

We have to report that we have examined the Balance Sheet with the books and vouchers of the Society, and have obtained all the information and explanations we have required. We are satisfied that the Securities are in existence and that the Society has kept proper books and accounts.

We are of opinion that such Balance Sheet is properly drawn up so as to exhibit a true and fair view of the state of the Society's affairs at the date thereof according to the best of our knowledge and the explanations given to us and as shown by the books of the Society.

CAPE TOWN
12th February, 1957

R. M. JOUBERT & Co.
Chartered Accountants (S.A.)
Auditors

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

INCOME and EXPENDITURE ACCOUNT for the Twelve Months ended 31 December 1956

	£	s.	d.	£	s.	d.		£	s.	d.	£	s.	d.
General Administration Expenses ..				150	4	0	Subscriptions:						
Audit Fees, 1956				15	15	0	Family Members	591	5	6			
Honorarium to Secretary/Treasurer..				300	0	0	Ordinary Members	2,238	11	1			
Bank Charges				11	15	11	Associate Members	328	7	4			
Stationery, Printing, Duplicating, etc.				259	3	5					3,158	3	11
Journal Nos. 41 and 42				418	7	5	Donations				142	6	0
Cost to date, including printing, dispatching, etc.	500	2	6				Interest on Investments				157	14	0
Less amounts received from adver- tisements				81	15	1							
Surplus for year						2,302	18	2					
						£3,458	3	11			£3,458	3	11

PUBLICATIONS ON SALE AT KIRSTENBOSCH

The following may be obtained by application, enclosing payment, to The Hon. Secretary, Botanical Society, Kirstenbosch, Newlands, C.P., South Africa. Prices include postage.

'Plants of Land and Sea'; W. E. Isaac	6d.
'The Genus Oxalis in South Africa'; T. M. Salter. (355 pages, 10 plates, 73 text-figures.)	35s.
'The Species of Oxalis occurring in the Cape Peninsula and how to distinguish them'; T. M. Salter	6d.
'General Hints on Raising Indigenous Plants from Seed'; H. F. Werner	6d.
'The Wilds, Johannesburg'; Miss G. Edwards	6d.
'A Tip for Horticultural Societies'; Dr. N. R. Smuts	6d.
'The Cultivation of Buchu'; H. F. Werner	6d.
'Three Hundred Years of Trees'; R. H. Compton	6d.
'South African Proteaceae and their Cultivation'; H. F. Werner	6d.
'Progress in the Study of the Silver Tree Disease'; D. Olivier	6d.
'Pelargonium—A South African Contribution to World Gardens'; F. M. Leighton	6d.
'The Propagation of Succulents from Seeds and Cuttings'; H. Hall	6d.
'Growing Proteaceae in the Summer-rainfall Area; M. M. Vogts	6d.
'Seaweeds'; W. E. Isaac	6d.
'Some South African Biennials and near-Biennials and their cultivation'; H. F. Werner	6d.
'Saving our Flora'; H. B. Rycroft	6d.
'Some South African Herbaceous Perennials and their Cultivation'; H. F. Werner	6d.
'Plant Names and their Origin'; M. R. Levyns	6d.
Annual Reports of the National Botanic Gardens, 1913-56, each year	3d.
Reprints available of articles published in the 'Journal of South African Botany', on inquiry, each	6d.
'The Journal of South African Botany'; Vols. I-XXII, 1935-57, each volume in four quarterly parts; per volume 30s., per part 10s. 6d. (To members of the Botanical Society 25s. and 8s. 6d. respectively.) Back volumes at price of publication.	

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

JOURNAL OF THE BOTANICAL SOCIETY: BACK NUMBERS

The following Parts are obtainable at the prices shown. The principal contents are mentioned below: each part also contains full-size Plates, News and Notes, Reports, etc.

Price to Members of the Botanical Society 1/6; to non-Members 2/6

Part	VIII.	South African Geraniaceae. The Cultivation of Geraniaceae. Medicinal and Aromatic Plants in S. Africa. South African Heaths. The Cultivation of Heaths.	L. Bolus. J. W. Mathews. R. H. Compton. L. Bolus. J. W. Mathews.
„	XXI.	Aloe Marlothii: Some Forms and Hybrids. Lawn Grasses on Trial at Kirstenbosch. How to form a Garden Library. South African Conifers for Garden Use. From New York to Kirstenbosch and Back.	G. W. Reynolds. J. W. Mathews. L. B. Creasey. J. W. Mathews. S. V. Coombs.
„	XXII.	South African Succulents at Kew. An Old Cape Frontier. Our Wild Flowers and Their Protection.	Sir Arthur Hill. E. A. Walker. F. Guthrie.
„	XXIII.	Economic Plants at Kirstenbosch. Garden Gladioli—Their Origin and History. Growing Plants from Seeds. Letters from an Early Cape Botanist.	F. W. Thorns. L. B. Creasey. S. G. Fiedler. M. C. Karsten.
„	XXVI.	The South African Genera of the Haemodoraceae. Humus and Soil Fertility. Mountains and Their Vegetation.	W. F. Barker. F. W. Thorns. R. H. Compton.
„	XXVII.	Weeds: The 'New' Cape Flora. Drug Plants.	R. S. Adamson. F. W. Thorns.
„	XXVIII.	The Herbarium of the National Botanic Gardens, Kirstenbosch. Nature Study in the Forests at Kirstenbosch.	R. H. Compton. M. E. Johns.
„	XXXI.	Cape Annuals for the Garden. A Plea for South African Trees.	F. W. Thorns. D. R. D'Ewes.
	XXXVI.	The National Botanic Gardens of South Africa: Its Aims, Functions and Policy. A Visit to the Herbarium, Kirstenbosch. Plant Collecting on the Kaokoveld.	R. H. Compton. W. F. Barker. H. Hall.
„	XXXVII.	Botanical Notes on a Visit to the Cape. Three Hundred Years of Trees. South African Proteaceae and their Cultivation. Progress in the Study of the Silver Tree Disease.	Sir Edward Salisbury. R. H. Compton. H. F. Werner. D. Olivier.
„	XL.	Seaweeds. An Australian Plant Propagator looks to South Africa for new plants for Australian Gardens. Growing Proteaceae in the Summer-rainfall Area. Some South African Biennials and near-Biennials and their Cultivation. Some impressions and reflections of a Plant Collector.	W. E. Isaac. T. A. Browne M. M. Vogts. H. F. Werner. T. P. Stokoe.

NEW MEMBERS OF THE BOTANICAL SOCIETY 1956

(LIFE MEMBERS: FAMILY MEMBERS: Ordinary Members: Associates.)

The star (*) indicates Members who are also Subscribers to the Wild Flower Protection Section.

All Members whose names appear are not necessarily new Members; those marked † have transferred to Life Membership during the year.

In case of any inaccuracy in the following list it is requested that notification should be made to the Hon. Secretary, Botanical Society of S.A., Kirstenbosch, Newlands, C.P.

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THE BOTANICAL SOCIETY OF SOUTH AFRICA

OBJECTS:

- (a) To encourage the inhabitants of South Africa to take an active part in the progress and development of the National Botanic Gardens at Kirstenbosch and the Karoo Garden at Worcester and to induce them to appreciate their responsibilities therein.
- (b) To augment the Government grants towards developing, improving, and maintaining fully equipped botanical gardens, laboratories, experimental gardens, etc., at Kirstenbosch and Worcester.
- (c) To organize shows at which may be displayed the results of botanical experiments or cultural skill in improving the different varieties of South African flora.
- (d) To enlighten and instruct the members of botanical subjects by means of rambles, meetings, lectures and conferences, and by the distribution of literature.
- (e) To promote the preservation of the Native Flora of South Africa, to encourage public interest in it, and to co-operate with the Public Authorities and others in the attainment of this object.

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Life, Family, Ordinary and Associate Members who wish to support the Wild Flower Protection Section of the Society may give an annual subscription of 5s. per annum in addition to the subscription for the class to which they belong. Those wishing to become Members of the Society are invited to communicate with the Hon. Secretary, Mrs. W. N. HALL, Botanical Society of South Africa, Kirstenbosch, Newlands, C.P.

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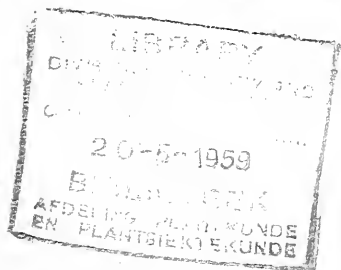
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PLATE I. Wild Flower Show. 1958.

His Excellency The Governor-General, Dr. The Hon. E. G. Jansen, admiring an exhibit of succulents together with Mr. Dudley R. D'Ewes, President of the Botanical Society (*left*), and Professor H. B. Rycroft.

The Journal of the Botanical Society of South Africa

EDITED BY H. B. RYGCROFT

PART XLIV

1958

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- PLATE 1. Frontispiece. Wild Flower Show, 1958. (Photo: *Cape Times*)
PLATES 2 AND 3. Birds at Kirstenbosch.
PLATES 4, 5 AND 6. Gasterias.
PLATE 7. Events at Kirstenbosch, 1958. (Photos: *Cape Times*)



News and Notes

PROGRESS

Since the publication of the 1957 Journal considerable progress has been made at Kirstenbosch and at the Karoo Garden and it is a pleasure to place on record some details of the development that has taken place. Far more, however, could have been accomplished had more staff and funds been available.

Compton Herbarium

The addition of two new wings to the Compton Herbarium has been completed and working conditions in the building are now very much easier. Professor R. H. Compton, in whose honour the Herbarium has been named, will perform the opening ceremony later in the year. This will be a great day for Kirstenbosch.

Staff Houses

Two new houses for Senior Horticulturists have been erected near Pearson House and are occupied by Mr. & Mrs. H. Hall and Mr. & Mrs. D. H. Mackenzie. The Curator's house, which was very small, has been partly rebuilt and enlarged. Mr. & Mrs. H. F. Werner will be glad to move into roomier quarters.

Tea House

The Tea House at Kirstenbosch is now being managed by Mrs. M. D. Fall and she is rendering excellent service to the public. The quality of the refreshments and the service are of a high standard and the Tea House is patronized even during wet winter days when visitors are unable to view the Gardens. Living accommodation has been added to the Tea House and the architectural effect is most pleasing.

New Glasshouses

The Glasshouses at Kirstenbosch were situated in the Nursery and were out of bounds to the general public. Two new Glasshouses have now been completed in the Gardens for the benefit of the public and plants will be placed therein when in flower and looking at their best. The Glasshouses are of modern design and will serve a very useful purpose.

New Reservoir

Shortage of water towards the end of summer has always been a serious problem at Kirstenbosch and we have been compelled to ration the supply to staff houses. Two boreholes have been sunk and a 100,000-gallon

reservoir has now been constructed. This will relieve our difficulties tremendously.

Ladies Rest-room

A rest-room and conveniences for ladies have been built near the Tea House. In addition to the usual plumbing arrangements they include rest-benches and hand-basins.

Karoo Garden, Worcester

In the past practically no building operations were ever carried out at the Karoo Garden because funds for this kind of work were allocated to the National Botanic Gardens of South Africa as a whole, and all was usually spent at Kirstenbosch. The Government, however, has now agreed to make separate funds available to Kirstenbosch and the Karoo Garden. As a result the rate of construction work at Worcester can now be accelerated.

The potting-shed, which was very small, has been considerably enlarged, public conveniences have been provided, a dwelling for the Senior Horticulturist has been built and a new cottage for labourers has been erected. In addition there are now a summer-house for visitors to the Garden, a glasshouse and a set of 18 frames.

The Karoo Garden is a unique institution and has great possibilities for development in the future.

* * *

DR. W. DUNCAN BAXTER

Our heartiest congratulations and best wishes go to our retired President, Dr. W. Duncan Baxter, on being elected a Freeman of the City of Cape Town on 17 June 1958, three days after this grand old gentleman celebrated his ninetieth birthday. He is the first person ever to be granted the Freedom of the City and it is an honour he well deserved.

As a token of respect for and appreciation of Dr. Baxter's long association with the Society and the Gardens an illuminated address was presented to him by the Council of the Society and the Trustees, Director and Staff of the Gardens at a function held at the Director's house in January.

* * *

INTERNATIONAL FLOWER SHOW, NEW YORK

For many years Kirstenbosch has dispatched South African wild flowers grown in the Gardens to different

parts of the world for display and exhibition. Earlier this year we were requested by the Director of the South African Information Service to supply an exhibit for the 41st International Flower Show which was held in New York from 9 to 15 March. Only on the day that the flowers were dispatched did we realize that we would be competing in the International Class.

Twenty-six exhibits comprising 25,000 items from nineteen different countries entered in this class, and were judged ten days after the flowers had been picked and dispatched by air.

We were extremely gratified to receive news that the National Botanic Gardens of South Africa had won the first prize and a gold medal in the International Class! The 'Wilds' of Johannesburg gained a bronze medal and the two Gardens jointly won for South Africa a silver trophy. The Hon. Minister of External Affairs, Mr. Eric Louw, formally entrusted the safe keeping of the Trophy and Medal to the National Botanic Gardens of South Africa on 24 July 1958 at a small function held at Kirstenbosch. The Hon. Minister of Education, Arts and Science, Mr. de Wet Nel, the Secretary for Education, Arts and Science, Mr. J. J. P. Op 't Hof, the Director of the South African Information Service, Mr. P. G. J. Meiring, and the Speaker of the House of Assembly, the Hon. J. H. Conradie, Q.C., were also present.

Mr. Louw stressed that South Africa could be proud of Kirstenbosch and of the work being carried on here. 'Kirstenbosch is in a class of its own. Compared with any Botanic Garden in the world it is a most unique institution. We must appreciate its significance for it is a treasure worth fostering and supporting', he said.

* * *

OTHER EXHIBITS

As a result of our success in New York the office was flooded with correspondence from all parts of the world requesting exhibits of our wild flowers grown at Kirstenbosch. Most of them had to be refused because we have not sufficient staff to deal with this type of work.

We are very keen to spread the fame of Kirstenbosch in this way but with limited staff we are unable to do very much because routine maintenance work would suffer and development would be made impossible.

B.O.A.C. kindly undertook to dispatch a display of wild flowers from Kirstenbosch to the Spring Flower Show in Harrogate, England, in May. The exhibit received considerable publicity in the national papers and was the subject of a B.B.C. sound broadcast, and it

was also televised. The display received a silver gilt medal award.

* * *

JUBILEE CELEBRATIONS, 1963

The Gardens at Kirstenbosch and the Botanical Society of South Africa were founded in 1913 and will therefore become 50 years of age in 1963. Plans are now being made to celebrate the occasion in a suitable manner. The organization of such celebrations demands considerable time and effort. Will any members who have suggestions to make and who are prepared to assist in organizing the celebrations please get in touch with me?

The following are some of the ideas which we are considering:

- (a) Fund-raising scheme.
- (b) Post Office at Kirstenbosch.
- (c) Commemorative issue of South African stamps.
- (d) Open-air theatre at Kirstenbosch, plays or pageants.
- (e) Brochure on the history and development of the National Botanic Gardens of South Africa.
- (f) Printed guide to the Gardens.
- (g) Civic reception.
- (h) Construction of a new lecture hall.
- (i) Photographic and other competitions.
- (j) International Flower Show at Kirstenbosch.

The list could be extended indefinitely but we require *helpers* to arrange and organize the celebrations.

Offers of practical assistance will be most welcome.

* * *

CONSTITUTION OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

For some time it has been felt that the Botanical Society should widen its sphere of activity to increase its support of the Gardens. The Constitution has, therefore, been revised. A Special General Meeting was held on 26 November 1957 to consider the matter, in consequence of which the revised Constitution was agreed upon and formerly accepted.

The new Constitution, which is published in this issue of the Journal, provides for additional classes of membership and the Gardens have agreed to supply gratis seed as follows:

Benefactors. Subscribing not less than £500 over a period of two years or less—50 packets annually.

Patrons. Subscribing not less than £100 in one payment—35 packets annually.

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Corporate Members. Subscribing not less than £5 per annum—35 packets annually.

All other classes of membership and relative seed distribution remain unaltered.

Furthermore, the new Constitution allows for the establishment of branches of the Society in different parts of the country.

Reprints of the amended Constitution are obtainable from the Hon. Secretary, Botanical Society of South Africa, Kirstenbosch, Newlands, C.P., price 6d. each.

* * *

PROTEA NEWS

During recent years there has been a steady increase of interest in the growing of members of the Protea family. We are very pleased to announce that a book entitled *Proteas—Know Them and Grow Them* written by one of our members, Mrs. Marie M. Vogts, is at present with the printers. Mrs. Vogts has had considerable success in growing Proteas under conditions different from those of their natural habitats and the information she has provided should be of great value to all who would like to grow these unique plants in their gardens.

The book is expected to be published towards the end of 1958.

* * *

J. W. MATHEWS TROPHY

In 1956 a sixty-guinea trophy presented in honour of the late Mr. J. W. Mathews, first Curator of the Gardens at Kirstenbosch, was awarded to Richard Morey of Northlands High School, Durban, for his winning essay. In 1957 the trophy was offered for a poster competition dealing with South African wild flowers. Unfortunately the entries were poor and no award was made.

This year it is offered to schoolchildren anywhere in South Africa for the best illustrated notes on six species of South African wild flowers. The scholar must describe the plants, state where they were seen, and give any other details. Entries which may be in English or Afrikaans should state name, age, standard and school of the competitor and should reach the Director of the Gardens not later than 15 September 1958.

The trophy and a miniature will be awarded to the winner at the Annual Gathering of Members, and Flower Show at Kirstenbosch on Saturday, 4 October.

* * *

VAN RIEBEECK HEDGE

The first boundary of the young colony in South Africa was fixed by Governor Jan van Riebeeck in 1660

and is the oldest living monument in the country established by European civilization. It was a hedge of the wild almond, *Braeeium stellatifolium*, an indigenous member of the Protea family, and part of it is still to be seen within Kirstenbosch.

To mark the tercentenary of the planting of this hedge young plants are now being raised and it is hoped to restore the hedge in 1960.

* * *

WILD FLOWER SHOW

The fourth annual Wild Flower Show for members of the Society will be held at Kirstenbosch on Saturday, 4 October 1958, and will be continued the following day. His Excellency, The Governor-General of the Union of South Africa, Dr. The Honourable E. G. Jansen, has kindly consented to perform the opening ceremony.

These shows in the past have been very successful and we are hoping for an even bigger and better event this year.

* * *

PROFESSOR PEARSON'S GRAVE

Professor H. H. W. Pearson, the founder and first Director of the Gardens at Kirstenbosch, was laid to rest near the cycad amphitheatre on 4 November 1916. The juniper hedge which surrounded the grave has now been replaced by a young hedge of *Coleonema pulchrum*, a delightful small South African shrub. Annuals planted in the vicinity will brighten the area in the spring.

* * *

BIRDS AT KIRSTENBOSCH

The interest of members of the Botanical Society does not lie in wild flowers alone. Plants comprise only one—perhaps the most important—component of our natural surroundings, and the birds are intimately associated with the plants and there is a very close relationship between avifauna and vegetation.

In this issue Dr. G. J. Broekhuysen, a leading authority on bird life in the Cape, has contributed an excellent article on the birds seen at Kirstenbosch.

When you visit the Gardens, do not just look at the plants: observe the other forms of nature as well. Rest for a while near the sundial; you may hear the soft warbling song of the Orange-breasted Sunbird, or among the proteas you may see the Long-tailed Sugar Bird flipping its wings above brightly coloured flowers.

Several interesting photographs which have not been published before, taken by Dr. Broekhuysen, appear with this article.

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DEVIATION OF RHODES DRIVE

Mention has been made previously that the Gardens at Kirstenbosch were divided in two by Rhodes Drive. Negotiations were commenced more than four years ago with a request to re-route the road along the lowermost boundary. Various departments, local authorities and other bodies had to be consulted and progress was slow.

The negotiations are now reaching a successful conclusion and the Divisional Council of the Cape has agreed to place the item on the 1961 estimates, subject to the approval of the Provincial Administration of the Cape.

The deviation, when completed, will benefit the Gardens tremendously.

* * *

SUBSCRIPTIONS OVERDUE

The Secretary is again experiencing difficulty in getting in subscriptions from some members. Mrs. Hall would really very much appreciate it if members would kindly send in their subscriptions as early as possible. A good time is when the 'general reminder' is sent to all members early in the year. Members sometimes think that because they are in receipt of their current membership card, their subscription is paid up to date. This is not always the case, as all members are circulated with cards at the beginning of the new year. This policy is adopted on account of the Society's fixtures being detailed therein. If you have not already sent in your subscription for this year, would you kindly do so at your earliest convenience and so avoid an individual reminder?

* * *

HONORARY LIFE MEMBERS

Two new Honorary Life Members were elected during the year. They are Mr. T. P. Stokoe and Mr. C. J. Sibbett.

Mr. Stokoe who reached the ripe old age of 90 years on 24 February 1958 is still a keen mountaineer and plant collector. He has collected many new species of mountain flora and about thirty have been named after him. Perhaps his greatest ambition is to rediscover *Mimetes stokoei*, a member of the protea family, which, as far as we know, has been completely exterminated. Following the advice given to him many years ago by Marloth, Mr. Stokoe has studied the habitat conditions where certain species grow and this has led him to find the same species in other localities with similar conditions. Although *Mimetes stokoei* no longer occurs where

he found it, he might still discover it in some little known part of the Hottentots-Holland Mountains. Who knows?

Mr. Sibbett joined the Society in 1919, was elected to Council in 1930, became Chairman of Council in 1943 and a Vice-President in 1947. He resigned as Chairman of Council in 1958 but is still a Vice-President and a member of the Council. The Society owes a debt of gratitude to Mr. Sibbett for his devoted interest and service over a very long period of time. His activities have been extremely varied and he is well known as the Founder and Chairman of the National Thrift Committee for South Africa, the President of the Boy Scouts Association and as a Trustee of the South African Public Library, the South African National Gallery and of the South African Museum.

* * *

BOTANICAL QUIZ

In the next issue of the Journal we hope to have a Botanical Quiz Contest. A prize will be offered to the sender of the first correct entry opened on a specified date. Sufficient time will be allowed for overseas members to enter.

In the meantime we should be pleased to receive suggested questions which should be accompanied by the correct answers and references. The questions, of course, should have some bearing on South African wild flowers, botany, horticulture or botanic gardens. Please let us have your co-operation.

* * *

FLOATING TROPHIES

The Floating Trophy, presented by Professor H. B. Rycroft for the most outstanding exhibit at the 1957 Wild Flower Show, was awarded to Mrs. J. S. Lindley for her very fine arrangement of Proteaceae.

An additional Trophy will be awarded at the 1958 Show. It has been presented by an overseas member of the Society, Mr. B. L. Chambers of Hawkes Bay, New Zealand, and will be for the best exhibit in the children's classes.

At the time of this Journal going to press Mr. Frank Connock, a Life Member of the Society, has also offered to present a floating trophy in the 1958 Show. It will be remembered that Mr. Connock generously donated a sum of £300 to the Society in 1954.

* * *

COMPETITION: MELSETTER HORTICULTURAL SOCIETY ARBORETUM

A prize of 30 guineas, presented by Mr. B. D. Goldberg, M.P., and Dr. W. Alexander, is offered for the

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best plan or layout for an Arboretum—a place set aside for a collection of living trees and shrubs.

An area of approximately thirty acres in the village of Melsetter is to be planted to trees and shrubs, native and introduced, and a plan is wanted for their setting out as interestingly and attractively as possible.

Conditions of entry, a contoured map of the site, and, if desired, a photograph, may be had on application to the Hon. Secretary, Melsetter Horticultural Society, P.O. Melsetter, or to Mrs. A. O. Crook, 101 First Street, Umtali.

There is an entrance fee of 5s. to defray the cost of the map and photograph.

Entries must reach the Honorary Secretary by 30 November 1958.

* * *

GASTERIAS

Species of the genus *Gasteria* resemble some of the smaller *Aloes* and belong to the same family, *Liliaceae*. Dr. Schelpe, Curator of the Bolus Herbarium, University of Cape Town, has been doing intensive and extensive research on this small but interesting genus and has come to the conclusion that many of the species described long ago are actually habitat forms of only a few species.

An article on this subject is published in this Journal. At Kirstenbosch we have agreed to grow a study collection of *Gasterias* for Dr. Schelpe who would be pleased to receive living material. If addressed officially to the Director of the National Botanic Gardens and labelled 'Botanical Specimens' parcels may be sent by post free of charge.

* * *

NEW CHAIRMAN OF COUNCIL

When Mr. C. J. Sibbett resigned his office as Chairman of the Council of the Botanical Society of South Africa early in 1958 (see item under Honorary Life Members), Mr. Milton Clough was elected to succeed him. Mr. Clough is one of the Society's representatives on the Board of Trustees of the National Botanic Gardens of South Africa and has a wide experience of banking and committee work. He was formerly General Manager of the Standard Bank of South Africa Ltd. from 1936 to 1948 and is still a member of the South African Board. He is also Chairman of several boards and committees.

* * *

CONGRATULATIONS

We offer our heartiest congratulations to two members of the Council: (1) to Dr. Margaret Levyns on being awarded the South African Medal and Grant for 1957-8

by the South African Association for the Advancement of Science in recognition of her botanical work on the Cape Flora: (2) to Dr. W. P. U. Jackson on being awarded, among other things, a Fellowship by the Royal Society for a study tour overseas. Dr. Jackson is an endocrinologist.

* * *

ANONYMOUS DONATION TO THE CAPE FLATS FLORA RESERVE

Recently Miss Edith L. Stephens, donor of the Cape Flats Flora Reserve to Kirstenbosch, received an anonymous letter containing a cheque for £100 'towards the cost of fencing the Cape Flats Flora Reserve which is as yet unfenced'.

She handed the cheque to Kirstenbosch, but as we are unable to divert funds which are urgently needed for Gardens' maintenance the Wild Flowers Protection Committee is being approached to help find another £500 for the erection of the fence.

The natural flora of the Cape Flats has disappeared almost completely as a result of the spread of the Australian wattles. Most of the Reserve, however, has now been cleared of these aliens by voluntary workers during week-ends, but pigs and cattle are still a nuisance. When a fence has been erected we shall be able to concentrate on the re-establishment of the original vegetation of the area.*

* * *

OBITUARY

Harold Nixon Porter. We regret to record the death of Mr. Porter who was a member of the Council of the Botanical Society of South Africa and of the Wild Flowers Protection Committee. Mr. Porter will be remembered for his devoted interest in South African wild flowers. In 1950 he started developing a wild flower reserve, 400 acres in extent at Betty's Bay where the local flora is particularly rich. He introduced many species of the south-western Cape flora into the reserve; in particular *Erica*, *Protea* and *Leucospermum*. It was Mr. Porter's wish that the reserve should eventually be controlled by the National Botanic Gardens of South Africa and this will probably take place.

Ernest Frederick Watermeyer. A former Chief Justice of the Union, the Rt. Hon. E. F. Watermeyer died in January 1958. He was a keen gardener with an extensive knowledge of horticulture and was a Trustee of the National Botanic Gardens of South Africa from 1936 to

* A further donation of £100 from 'a member of the Garlick family' has since been received. For these donations we are most grateful.

1954 and Vice-President of the Botanical Society of South Africa from 1947 to 1957.

Lewis A. Solomon. The death of Mr. Solomon (Sammy) on 21 June 1958 is also recorded with sincere regret. Mr. Solomon was Honorary Secretary/Treasurer of the Botanical Society of South Africa from 1942-7. For many years before this, however, he was associated with the Society. During his term of office as Hon. Secretary he served the Society with outstanding devotion. It was a matter of great regret to him that, owing to advancing years, he had to resign his duties. For a long period of time he continued to act as wise counsellor to Mrs. Hall when she took over his work in respect of

the Botanical Society. His passing is a sad loss to the Society.

Captain Charles Struben. Captain Struben, who died in March 1958 at the age of 80 years, is also sadly missed. He was a member of the Council of the Botanical Society for a number of years and will be remembered for his work in connection with *Wild Flowers of the Cape of Good Hope* which was published by the Botanical Society in 1952. He was associated with many societies and public bodies and had been a sailor, lawyer, writer, sportsman, and politician. Captain Struben was one of the two surviving members of the Old Cape Parliament before the advent of Union.

THE MENACE OF ALIEN VEGETATION

The Botanical Society of South Africa has long realized that one of the main threats to the indigenous flora of this country is the steady spread of alien plants, chiefly Australian.

The position—particularly in the south-western Cape, known throughout the world for its wealth and beauty of natural flora—has become almost out of hand and immediate action must be taken.

A new Committee, an offshoot of the Wild Flowers Protection Committee, has now been formed to deal with this problem. It is the 'Control of Alien Vegetation' Committee, or C.A.V. for short.

This Committee is abundantly aware of the enormity of the task which it faces but at the same time is convinced that unless the problem is tackled now we shall have to say goodbye for ever to South Africa's scenic beauty, flora and fauna, except in areas such as Kirstenbosch which are specially set aside for the protection and conservation of our natural resources.

Our appeal is to all owners of large tracts of land to save our wild flowers and to exterminate the alien vegetation which threatens to take possession of our country.

The determined invasion by the foreign weeds—and the most serious are the Wattles, Hakea, Pines and Eucalypts—is of comparative recent origin and it is estimated that if the advance is not checked *now* a large percentage of our natural flora in certain areas will be completely wiped out in the next 15 to 20 years.

May we please have your whole-hearted co-operation? We need it!

H. B. RYCROFT

Hon. Chairman, Control of Alien Vegetation Committee

The Early Years of Kirstenbosch, 1913-20

By W. DUNCAN BAXTER

THE National Botanic Gardens at Kirstenbosch today are established and flourishing, but it took a good many years for this happy consummation to be brought about. Harold Pearson, Professor of Botany at the South African College, now the University of Cape Town, was responsible for its establishment in 1913. He came from Cambridge University early in this century and was greatly impressed with the exceptional wealth and variety of the flora of the Cape Peninsula and surrounding country and also with the lack of interest taken in it and the absence of any effort to preserve, study, and propagate it. He it was who aroused the people and authorities and convinced them of the urgent need of taking action which led to the establishment of the National Botanic Gardens. It was a disaster that he lived less than four years after that event but in that time he did wonders with the limited resources at his command in laying out the gardens and planning their future development.

Before proceeding to deal with the income at the disposal of the Gardens in those early years, I should explain the setting-up of the Botanical Society and how I, who am not a botanist nor even a gardener, came to be closely connected with Kirstenbosch.

In agreeing to the founding of the Gardens the Botha Government stipulated that while it would make an annual grant-in-aid, the Board of Trustees, which is the governing body responsible for the running of the Gardens, must not look to the Government to supply all its requirements but must take steps to find other sources of revenue. This led to the establishment of the Botanical Society, primarily for the purpose of raising funds for Kirstenbosch but also to arouse and keep the interest of the public in the Gardens and in the wonderful flora of the surrounding countryside, which task it has succeeded in doing admirably.

The Society was formed in 1913 and quite unexpectedly I was elected Treasurer. Having been given the right to nominate one of the Board of Trustees I was appointed to fill that position and in this was started my connection with Kirstenbosch. I was made Chairman of the Board in 1918 and remained in that position until

my retirement in 1957. Pearson's death forced me to become much more closely involved in the affairs of Kirstenbosch. The Trustees appointed Mr. Frank Cartwright and myself to 'supervise the general work of the Gardens' until a new Director was installed. No one anticipated that it would take twenty-eight months for this to happen and we carried on until Pearson's successor assumed office. We co-operated well with the invaluable help of the Curator, Mr. J. W. Mathews, who was a tower of strength. Cartwright, an enthusiastic gardener, looked after the Gardens. My job was to control the finances and this I went on doing all the time I was a Trustee. I had my work cut out.

The annual reports reveal that in the first full year, 1914, the total income was £2,285; derived from Government grant-in-aid £1,000, Cape Town Council grant £300, Botanical Society £432, sale of wood and acorns £492, and sundries £61. Total revenue for the next five years came to £2,301 in 1915, £2,679 in 1916, £2,671 in 1917, £2,699 in 1918, £3,040 in 1919, £3,126 in 1920. The Government grant was reduced in 1915 after the outbreak of the First World War to £750 and not restored until 1920. The difficulty of establishing and maintaining the Gardens with such inadequate resources need not be enlarged upon.

Small wonder that in the Report for 1920 occurs the following:

'The inadequacy of income was responsible for deplorable results. Not only was development almost unthinkable but the degeneration of roads and paths, nursery stocks, labels and so on was only too evident: and much of the loss occasioned is almost irreparable. At one time the Curator had no skilled gardener in his charge and the labourers' wages were reduced to a total of £16 a week.'

We carried on and slowly got into smoother water but the improvement was very gradual. The Government grant-in-aid was increased to £1,500 in 1921 and that of the Cape Town Municipality to £500. Not until 1919 did our revenue exceed £3,000 and it took another fifteen years to reach £5,000 per annum permanently.

It is interesting to note the important part played by the sale of wood and acorns in these critical years. They literally saved the Gardens. In the seven years 1914-20 out of a total revenue of £19,103 they contributed £5,905 which equals 31 per cent. We even sold soil and gravel to help our funds. Beginning in 1919 buchu, which Pearson had planted, came to the rescue and brought in £79 in 1919 and £335 in 1920. With the cutting down of the superfluous oak trees, revenue from wood and acorns gradually ceased.

All this time the Botanical Society was of great help and contributed its quota to the funds. It felt the effect of the war years like every other body but in addition to its annual grant it collected donations from interested people to supplement the grant and also for special objects such as the Water Main, the Fern Dell and the Tea House and to establish a plant-collecting fund. We had many loyal supporters.

In the Director's Report for 1915 is the following:

'We are again indebted to the Botanical Society for a considerable addition to our funds without which much of the new work undertaken during the year would have been left undone. The influence of the Society and the great interest shown by many of its members in the progress of the work at Kirstenbosch has been of invaluable benefit to the Gardens.'

And in each annual report similar tributes were paid.

And so ends my story of the first eight years of Kirstenbosch. Today the Gardens amply justify the tribute paid to them in the Report of the State-aided Institutions Commission 1951, viz.:

'The National Botanic Gardens, together with the Karoo Garden at Worcester, are unique, valuable assets, of which the country may well be proud.'

SEED DISTRIBUTION, 1959

Your copy of the 1959 seed list is enclosed with this Journal, together with an addressed envelope to The Director, National Botanic Gardens.

This has been designed to save time and it would be sincerely appreciated if members would kindly make use of this service.

Birds of the National Botanic Gardens of South Africa, Kirstenbosch

By DR. G. J. BROEKHUYSEN
(Department of Zoology, University of Cape Town)

INTRODUCTION

A BOTANIC GARDEN like Kirstenbosch, situated on the lower slopes of Table Mountain, and including quite a large area covered by natural vegetation, attracts quite a number of species of birds by the certain degree of protection and abundance of food it provides.

In this contribution some of the more striking and common birds will be mentioned in some detail and the part of Kirstenbosch which they usually frequent indicated. At the end a list is given of all the species of birds recorded from the garden up to date. This list is the result of observations by members of the Cape Bird Club.

Kirstenbosch consists of a number of different habitats and in an account of its avifauna, it seems best to consider these habitats separately. In order to make it easier to consult Roberts's *Birds of South Africa*, the relevant number under which it appears in that book is given in parenthesis after the scientific name each time the species is mentioned for the first time and in the complete list at the end.

THE HIGHER PARTS COVERED WITH PROTEACEAE AND ERICACEAE

This habitat is more or less the natural vegetation of the mountain slope and it is the 'home' of some very interesting species with strong affinity to this type of vegetation. Where Proteas are strongly dominant, we find the Long-tailed or Cape Sugar Bird *Promerops cafer* (749) as the commonest species. The sight of one or more males, perched on a tall Protea bush or in the top of a silver tree, their long tails trailing in the gusty north-west wind, is a very familiar feature in this area. Their hoarse, rattling call-notes are all around and now and then one jumps up into the air with a series of jerky leaps with wingtips touching audibly at the end of each down stroke and the tail jerking up and down. This bird is very much dependent on Proteas and its breeding season coincides with the chief flowering season of these plants, the late autumn and the winter months. The

nests are nearly always built either in, or otherwise very near, Proteas, and the brown Protea fluff forms an important part of the nest material and is always present. Most of the food on which the (usually two) young are fed by the parents is collected in Proteas. The species is double brooded and defends a breeding territory against others of the same species. Its habits and behaviour have recently been fully worked out (Broekhuysen, Proceedings of the Pan African Ornithological Congress, Supplement 3, *The Ostrich*, 1959). In the late spring and summer the birds leave the Protea-clad slopes and move to other areas where other plants, then in flower, attract them. It is at this time that one sees them in the lower regions of Kirstenbosch, for instance in the bushes around the lawn and sometimes on flowering Red-hot Pokers near the pond.

Where Proteas are less dense and give way to different species of heather, we find the Orange-breasted Sunbird *Anthobaphes violacea* (753) as the commonest species. The male is one of the most striking birds one can encounter in the garden. When fully adult, it has a magnificent plumage, metallic blue green on the head and neck, an iridescent violet collar around the upper part of the breast and, below that, warm orange covering the rest of the breast and the greater part of the vent. The two centre tail feathers are prolonged and make the tail wedge-shaped. In the proper light, this little fellow looks like a glowing and sparkling ball of fire. In Kirstenbosch the species breeds from June until October, thus covering most of the flowering time of the Ericaceae. The snug, pouch-shaped nest can be from a few inches off the ground to high up in a silver tree. The birds are strongly territorial during the breeding season but during the non-breeding season the territorial behaviour wanes considerably, and the pair seems to break up until the following breeding season when they both meet again in the same territory and, as ringing has shown, pair up again. The common call-note is a rather pleasant 'tseep', 'tseep-tseep', but the bird also has a high-pitched warbling song, usually rather soft, and often uttered by the male while sitting somewhat concealed inside a bush.

The full clutch is normally two eggs, but sometimes one egg is laid. The species is the subject of a detailed life-history study by the author and the results will be published in the near future.

In this habitat of heath and scattered Proteas we also find the Cape Wren Warbler *Prinia maculosa* (651) or Tinkinkie. The size is about the same as that of the previous species. General colour is brown grey with lighter underparts and fine dark stripes on the breast. The tail is longish and usually held in an upright position. The rather striking alarm call 'tsirrr' and the ringing 'tink-tink' call usually give the bird away. Nests are quite common in Kirstenbosch and can be found in spring. They are pouch-shaped, woven of strips of grass-blades and suspended and lodged between the branches of low heather-like bushes. The nest, therefore, is green in the beginning but soon turns yellowish-brown, blending well with its direct surrounding. It is sparsely lined with vegetable fluff.

During the autumn and the winter months this habitat is also occupied by the Lesser Double-collared Sunbird *Cinnyris chalybeus* (760). This is a spring breeder but seems to prefer the Cape Flats for breeding purposes as I have never found a nest on the slopes of the mountain of the Peninsula. Several other species occur as stragglers in this habitat as: the Cape Robin *Cossypha caffra* (581), Boubou Shrike *Lanius ferrugineus* (709), Fiscal Shrike *Lanius collaris* (707), Cape White-eye *Zosterops pallidus* (775), Malachite Sunbird *Nectarinia famosa* (751), Cape Francolin *Francolinus capensis* (181), and others.

GUM-TREE PLANTATION AND PINE TREES

Some parts of the higher areas are covered with Eucalyptus and scattered pine trees. This type of vegetation is usually sterile as regards avifauna and Kirstenbosch is no exception. However, in a few cases Orange-breasted Sunbirds build a nest in a pine tree on the edge of the Eucalyptus stand above and next to the water reservoir. A pair of Malachite Sunbirds have probably done the same, although the actual nest was never found and a pair of Red-breasted Sparrowhawks *Accipiter rufiventris* (156) probably have a nest every year in the gum trees above the silver trees stand. On the whole these trees do not attract birds except when they flower. These apparently appeal strongly to Sunbirds and White-eyes.

SILVER TREES STAND

In this habitat the silver trees are the dominant species but there are other trees and shrubs as well. It is a

good area for birds and quite a variety can be seen here. The Sombre Bulbul *Andropadus importunus* (551) is very common but more often heard than seen, as it does not like to venture into the open. The loud and rather shrill 'peet' which has given this bird its Afrikaans name—piet—is, however, unmistakable. White-eyes roam around in small flocks, hunting aphids and other small insects on the twigs and leaves. The Cape Robin and the Boubou Shrike are nearly always present, while the Cape Turtle Dove *Streptopelia capicola* (316) often sits on branches or among the dry leaves covering the ground. In the spring we may, with luck, find the two white eggs of the South African Nightjar *Caprimulgus pectoralis* (373) lying on the ground between dead leaves and twigs. The eggs are conspicuous enough, but the bird has a shape and plumage pattern which blend almost perfectly with the surrounding, so much so that even an experienced observer usually only notices it when it flies up just in front of his or her feet. The Cape Fly-catcher *Batis capensis* (672) is also often heard and seen here, although this is not a typical habitat for it. Cape Francolins often scratch among dead leaves on the ground seeking food.

INDIGENOUS FOREST ALONG THE STREAMS

In Kirstenbosch, there is unfortunately rather little of this type of habitat, which is the home of a limited, but typical, number of bird species. The Sombre Bulbul and the Cape Fly-catcher are the more dominant ones. The latter makes a most dainty cup-shaped nest, using lots of cobweb and fibres and covering the outside with lichen. This nest is built by both the female and male, is very strong, and usually a year after the young have flown out still in perfect condition. It is, however, never used twice in succession. Within the last few years the Paradise Fly-catcher *Terpsiphone viridis* (682) has made its appearance in Kirstenbosch but this species also frequents the next habitat. As can be seen from the picture the male is a most striking creature. Its nest is very similar to that of the Cape Fly-catcher. In both cases the clutch has two eggs. The Cape Fly-catcher often is the host of the young of the Klaas's Cuckoo *Chrysococcyx klaas* (351), which does not make its own nest but parasitizes others. Klaas's Cuckoo has been heard in Kirstenbosch quite frequently, and quite recently I had a most perfect view of the green male sitting in one of the oak trees at the car-parking area.

Sweet Waxbills *Estrilda melanotis* (825) are known to have nested in this type of vegetation, but no nests have been found in recent years although I have seen the birds.



Cape Fly-catcher male has just given food to incubating female.



Paradise Fly-catcher male has just fed the two young in the nest.



Bokmakierie just about to feed the four small young in the nest.



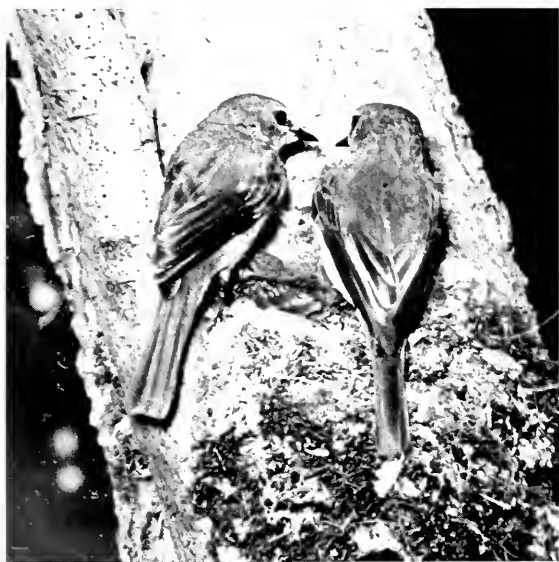
Cape Robin just about to feed the young.
(Photographed by G. J. Broekhuysen)



Orange-breasted Sunbird male feeding the two young.



Cape Wren Warbler bringing an insect to its young in the nest.



Male and female Dusky Fly-catcher on the nest.



Cape White-eye coming back to nest to incubate.
(*Photographed by G. J. Broekhuysen*)

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

THE OAK TREES IN THE NORTH-EASTERN SECTION

These represent, from the bird point of view, quite a characteristic habitat. The dominant species are, the Dusky Fly-catcher *Muscicapa adusta* (655), the European Chaffinch *Fringilla coelebs* (870) and perhaps the Cape Turtle Dove. In spring many nests of Dusky Fly-catchers can be found. The nest of this species of Fly-catcher is far from dainty or neat, in fact it is scruffy and rather untidy and always on some flat part. In the picture both male and female are seen on their nest. There is, therefore, an interesting difference in the nest construction between the Cape Fly-catcher and Paradise Fly-catcher on the one side and the Dusky on the other. The two former seem to be the more advanced in this respect. The European Finch was originally introduced by Cecil Rhodes but never spread beyond the area — Lion's Head on the one and Constantia Nek on the other side. Their cup-shaped nest is usually high up and not easy to see unless one follows the carrying or feeding parent bird. The Cape Canary *Serinus canicollis* (857) is also common here, and in spring its attractive song is all around. White-eyes occur in fair numbers and must breed here quite frequently, and the Paradise Fly-catcher can be seen and heard in the summer.

THE LOWER REGIONS AROUND THE LAWNS AND JUST ABOVE THESE

This is rather a varied part and more typical of the garden type. The types of birds one finds here are typical garden birds, which may be found in any private garden on the foot of Table Mountain. The Cape Turtle Doves are very common and among them are often some Laughing Doves *Stigmatopelia senegalensis* (317) differing from the former by the absence of the dark collar on the back of the neck and the more russet colour. The Cape Thrush *Turdus olivaceus* (553) is always about and can easily be recognized by its yellow-brown breast and yellow bill. They nest quite freely in the early spring and the nest is often fairly high above the ground in a small tree. The Cape Robin is common and so is the Fiscal Shrike. Nests of both have been found in this area. The Cape Robin is one of our best singers and early or late visitors to the garden have an opportunity to listen to one of our champion singers. They often imitate other bird's calls in their song. All the nests I have seen in Kirstenbosch were always on the ground, but the species often builds a nest some feet off the ground in rather dense bush. The Bokmakierie *Telophorus zeylonus* (722) can also be seen here, although the

species is not very common. The picture was taken in Kirstenbosch and in this case the nest was on the ground near some *Watsonias*. This was unusual as it is usually some feet off the ground. The clutch is four. In the spring Cape Canaries can be heard everywhere in this area. The European Starling *Sturnus vulgaris* (733), also introduced by Cecil Rhodes, is common. In contrast to the European Chaffinch, the European Starling increased rapidly and invaded large areas becoming a pest and is now considered vermin.

The Red-Hot Pokers, when flowering, attract Sugar Birds and the Malachite Sunbird, and on the grass near the pond Cattle Egrets *Bubulcus ibis* (61) hunt for grasshoppers, but this is only very early in the morning or late in the afternoon when very few visitors are about.

BIRDS WHICH ONLY FLY OVER THE GARDEN

There are quite a number of birds which roost on the mountain ledges and kranses, but in the daytime feed in the gardens of the suburbs or even on the Cape Flats. In doing so they regularly fly over Kirstenbosch, and any one who visits the garden early or late may see them. They are chiefly Red-winged Starlings *Onychognathus morio* (745), Rock Pigeons *Columba guinea* (311) and Rameron Pigeons *Columba arquatrix* (312).

A pair of White-necked Ravens *Corvus albicollis* (524) are often soaring around and in the summer there is usually one or more pairs of the migratory Steppe Buzzard *Buteo buteo* (154) and sometimes large numbers of the Alpine Swift *Apus melba* (386) and the Black Swift *Apus barbatus* (380) flying overhead.

DISCUSSION

Although it is realized that Kirstenbosch is primarily a botanic garden, an increase in its birds will enhance its value and should be encouraged. At the moment there are several factors which work against this. The number one enemy is the Grey Squirrel, which is common and which should be drastically reduced. Ordinary domestic cats and muishond account for many young and old birds which have their nests near the ground. Lastly upshoots of Eucalyptus trees are advancing and invading and replacing Protea and heather vegetation. As we have seen, ground covered by Eucalyptus trees is rather 'bird-sterile' while Protea- and heather-clad slopes support a very interesting and fairly rich bird life. It is hoped that in the near future it will be possible to deal with these factors.

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

A LIST OF ALL THE SPECIES OF BIRDS RECORDED FROM THE NATIONAL BOTANIC GARDENS OF SOUTH AFRICA, KIRSTENBOSCH

(Compiled by members of the Cape Bird Club)

PHALACROCORACIDAE (CORMORANTS)

Phalacrocorax africanus (50) Rietduiker

ARDEIDAE (HERONS)

Ardea cinerea (54) Grey Heron
Ardea melanocephala (55) Black-headed Heron
Bubulcus ibis (61) Cattle Egret
Scopus umbretta (72) Hamerkop

AQUILIDAE (KITES, EAGLES, BUZZARDS, HARRIERS, HAWKS)

Aquila verreauxi (133) Black Eagle
Buteo buteo (155) Steppe Buzzard
Buteo rufofuscus (152) Jackal Buzzard
Accipiter rufiventris (156) Red-breasted Sparrowhawk

FALCONIDAE (FALCONS, KESTRELS)

Falco tinnunculus (123) Rock Kestrel

PHASIANIDAE (FRANCOLINS, QUAIL)

Francolinus capensis (181) Cape Francolin

COLUMBIDAE (PIGEONS, DOVES)

Streptopelia capicola (316) Cape Turtle Dove
Stigmatopelia senegalensis (317) Laughing Dove
Columba guinea (311) Rock Pigeon
Columba arquatrix (312) Rameron Pigeon
Aplopelia larvata (322) Cinnamon Dove

CUCULIDAE (CUCKOOS, COUCALS)

Cuculus solitarius (343) Piet-my-vrou
Chrysococcyx klaas (351) Klaas's Cuckoo (Meitjie)
Centropus superciliosus (356) Burchell's Coucal

ALCEDINIDAE (KINGFISHERS)

Megaceryle maxima (395) Giant Kingfisher
Corythornis cristata (397) Malachite Kingfisher

UPUPIDAE (HOOPES)

Upupa africana (418) African Hoopoe

STRIGIDAE (OWLS)

Bubo africanus (368) Spotted Eagle Owl

CAPRIMULGIDAE (NIGHTJARS)

Caprimulgus pectoralis (373) South African Nightjar

COLIIDAE (MOUSEBIRDS)

Colius striatus (390) Speckled Mousebird

PICIDAE (WOODPECKERS)

Dendropicos fuscus (450) Cardinal Woodpecker
Geocolaptes olivaceus (445) Ground Woodpecker

APOPIDAE (SWIFTS)

Apus barbatus (380) Black Swift
Apus melba (386) Alpine Swift
Apus caffer (383) White-rumped Swift

MOTACILLIDAE (WAGTAILS, PIPITS, LONGCLAWS)

Motacilla capensis (686) Cape Wagtail

PICNOTOTIDAE (BULBULS)

Pycnonotus capensis (543) Cape Bulbul
Andropadus importunis (551) Sombre Bulbul

MUSCICAPIDAE (FLY-CATCHERS)

Muscicapa adusta (655) Dusky Fly-catcher
Batis capensis (672) Cape Fly-catcher
Terpsiphone viridis (682) Paradise Fly-catcher

TURDIDAE (THRUSHES, CHATS)

Turdus olivaceus (553) Cape Thrush
Cossypha caffra (581) Cape Robin
Monticola rupestris (559) Cape Rock Thrush
Cercomela familiaris (570) Familiar Chat

SYLVIDAE (WARBLERS)

Bradypterus sylvaticus (611) Knysna Scrub Warbler
Sphenocercus afer (618) Cape Grassbird
Cysticola fulvicapilla (637) Neddicky
Prinia maculosa (651) Cape-Wren Warbler

HIRUNDINIDAE (SWALLOWS, MARTINS)

Hirundo albicularis (495) White-throated Swallow
Hirundo cucullata (502) Larger Striped Swallow
Hirundo rustica (493) European Swallow

PSALIDOPROCNIDAE (HOLOMELEANS)

Psaltidoprocne holomeleana (511) Black Saw-wing Swallow
Ptyonoprogne fulgula (506) Rock Martin

CAMPEPHAGIDAE (CUCKOO-SHRIKES)

Campephaga sulfurata (513) Black Cuckoo-shrike

LANIDAE (SHRIKES)

Lanius collaris (707) Fiscal Shrike
Laniarius ferrugineus (709) Boubou Shrike
Telophorus zeylonus (722) Bokmakierie

CORVIDAE (RAVENS, CROWS)

Corvus albus (522) Pied Crow
Corvus capensis (523) Black Crow
Corvus albicollis (524) White-necked Raven

STURNIDAE (STARLINGS)

Sturnus vulgaris (733) European Starling
Onychognathus morio (745) Red-winged Starling

ZOSTEROPIDAE (WHITE-EYES)

Zosterops pallidus (775) Cape White-eye

NECTARINIDAE (SUNBIRDS)

Nectarinia famosa (751) Malachite Sunbird
Anthobaphes violacea (753) Orange-breasted Sunbird
Cinnyris chalybeus (760) Lesser Double-collared Sunbird

PROMEROPIDAE (SUGARBIRDS)

Promerops cafer (749) Cape Sugarbird

PLOCEIDAE (WEAVERS, BISHOP BIRDS, WAXBILLS)

Ploceus capensis (799) Cape Weaver
Colius passer capensis (810) Cape Bishop Bird
Estrilda estrild (843) Common Waxbill
Estrilda melanotis (825) Sweet Waxbill

PASSERIDAE (SPARROWS)

Passer melanurus (786) Cape Sparrow

FRINGILLIDAE (CANARIES, SEED-EATERS)

Fringilla coelebs (870) Chaffinch
Serinus canicollis (857) Cape Canary
Serinus sulphurata (863) Bully Seed-eater
Serinus totta (855) Cape Siskin

Notes from New Zealand

By W. R. STEVENS (Wanganui, New Zealand)

IT would be a fair assumption to say that, in theory, latitude is the most important guide when selecting plants to grow in a particular locality, but in practice it does not seem to work out quite so simply or correctly. Quite a number of factors complicate this theory and some of them present problems that have no easy solution. There are, in particular, three aspects that modify latitude to a major degree and it would be as well to consider them before being dogmatic. The first is whether the latitude is applied to a small narrow country like New Zealand or a broad mass of land like Australia or South Africa. The major difference between New Zealand and the other two countries is that we do not, except in a few parts, experience the extremes of climate that they do. For instance, the latitude of Wanganui is roughly about 40 degrees South and has a very equable climate ranging between 27 degrees in the winter to 85 degrees in the summer. But if we follow the latitudinal line to Australia, where they have a continental climate, we find that Melbourne gets high temperatures in the summer, often over 100 degrees, and further along this line, Adelaide gets much higher temperatures. Yet there is not a great deal of difference in the latitude.

There is also the matter of altitude. Nobody would suggest that plants from Mt. Kilimanjaro, Brazil or Ecuador would be hardy in Wanganui, and yet we grow very successfully such plants as *Cavendishia acuminata* (Ecuador), *Tibouchina grandiflora* (Brazil), *Thunbergia gibsonii* (Mt. Kilimanjaro), *Thunbergia grandiflora* (India), and *Petrea volubilis* (Mexico). All these come from much lower latitudes than New Zealand but because they occur at high elevations, it means that, in essentials, our latitude would have much in common.

Lastly, the matter of soils. When we import into New Zealand, we are concerned to provide the soil conditions of the native habitat, but as the particular type of soil may not be represented in this country, we have to compromise and do our best to emulate it. Fortunately, we have in New Zealand a great range of soil types, and it is by wide planting throughout this country that we assemble valuable, if not always reliable, data. So while we may not always be successful, we do get some surprising results, and it is not uncommon to hear overseas visitors commenting on the fact that many plants do better here than in their native country.

If this is true, then what is the reason? Surely not skill, as real gardeners occur in most parts of the world. We can, of course, advance the theory that most plants are in a state of evolution, trying to adapt themselves to changing conditions, such as drought or lack of humus.

Here in New Zealand, which is, geologically speaking, a young country, plants encounter a plentiful rainfall in their growing season, and there is no lack of humus. In consequence, there is not the same battle for survival, and plants grow more naturally and with less effort. In fact, some South African bulbs grow so easily here that they have become a menace. I refer particularly to the genus *Oxalis*, of which two species have 'run amuck'. These are *O. cernua* and *O. purpurea*. *Homeria breyniana* has also made a home for itself in various parts of this country, and although a good deal of research has been done with sprays, no satisfactory formula has, as yet, been evolved. Why these bulbs should be so absurdly happy in this country has yet to be explained. The simple answer of soil and climate does not satisfy many gardeners as they feel there must be other contributing factors, because this is not the only example. The same thing has occurred with the Australian Opossum, which was introduced to New Zealand many years ago. This has increased and is increasing by thousands or millions, and our native flora is suffering badly. Yet in its native habitat, this animal does not increase to anywhere near the same extent. Why? To answer that conditions suit it, is just begging the question. A more recent example of this epidemic tendency is the Snail (*Achatina fulida*) from East Africa which was carried by the Japanese to various islands during the war. In Siphora, off the coast of Sumatra, this snail has increased so fast that the flora of that island is in great danger of being eaten out. There are two other South African plants which I would place on the danger list as far as the North Island (of New Zealand) is concerned. The first is *Moraea ramosissima*, which I raised from seed over twenty years ago. The increase around each bulb had to be seen to be believed, the number was so astronomical, and even the most minute of them were extraordinarily tenacious of life. It took me over twelve years to collect and destroy the last vestige of it. Another plant which misbehaves itself is *Senecio glastifolius*, and I am very sorry about this as I thought it a very showy plant. But from our garden

it escaped into surrounding pasture and had to be ruthlessly gathered up and destroyed.

In re-reading these remarks, it almost sounds as if I was deliberately picking on the South African plants just to complain about them, but this is far from being the case, as I am completely 'sold' to your flora. In fact, I have only one ambition and that is to grow as many South African plants as I can procure. My only complaint is that I cannot get enough of them.

On a table near me as I write is a vase of *Protea marlothii* flowers in three colour forms, from a warm cinnamon red to a lovely cool, almost lime green. At any time of the year these flowers would be striking and unique, but to have them in the middle of winter, makes them still more attractive. Another vase contains a collection of interesting flowers which include *Homo-glossum salteri*, *Protea pityphylla*, *Phytica gnidioides* and *Felicia amelloides* 'Santa Anita'. This last plant is a tetraploid raised by Mr. Quin Buck of the County Arboretum in Los Angeles, U.S.A. It is about twice the size of the type plant, and the growth is not so compact;

a very worthy addition to our gardens, and I am very pleased to have it growing.

I recall reading that *Monsonia speciosa* is difficult to transplant, and it should be raised from seed. This is all very well when you have the seed, but it is almost necessary to camp alongside the plant in order to catch the seed before it 'explodes', so we prefer to propagate it by means of root cuttings, the same way as we do *Bouvardias*. They are quite easily rooted and flower the second year.

Romulea sabulosa is, in my opinion, one of the most attractive bulbs from South Africa and we grow up to a thousand bulbs a year. However, we have found that it is very high on the diet of rabbits and hares, so we have to protect them by wire-netting. If not covered, the hares will nibble all the foliage off down to soil level, and of course we do not get any flowers. We have quite a range of South African bulbs, but the hares will not touch anything else while they can get *Romulea sabulosa*.

The South African flora is of intense interest to gardeners in New Zealand, and every new plant introduced helps to sustain this interest.

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Botanical Society of South Africa

CALENDAR OF MEETINGS FOR 1958

Sunday, 12th January, 3 p.m.

'Visit to a Member's Garden' Miss K. Murray,
Elgin. Cars meet Elgin Post Office 2.45 p.m.

Tuesday 18th February, 8.15 p.m. Lecture Hall, Kirstenbosch.

Talk on 'Cape Wild Flowers in the Transvaal',
illustrated by colour slides, by Mrs. Sima Eliovson.

Tuesday, 25th March, 8.15 p.m. Lecture Hall, Kirstenbosch.

Annual General Meeting, followed by 'Planning a
Wild Flower Garden.' Illustrated talk by Dr. G.J.
Lewis and Mr. A. J. A. Simpson.

Thursday, 1st May, 8.15 p.m. Rhodes General Lecture
Theatre, Grahamstown.

'South African Wild Flowers.' Illustrated talk by
Professor H. B. Rycroft (in co-operation with the
S.A. Museums Association).

Tuesday, 27th May, 8.15 p.m. Lecture Hall, Kirstenbosch.

'The Development of Parks and Gardens in the
O.F.S. Goldfields.' Talk accompanied by films
by Mr. G. M. L. Feinauer.

Tuesday, 26th August, 8.15 p.m. Lecture Hall, Kirstenbosch.

Film evening. A programme of Cine-films in colour
by Mr. K. F. Howes-Howell.

Saturday, 6th September, 3 p.m.

Annual Visit to the Karoo Garden, Worcester.

Saturday, 20th September, 3.30 p.m.

Visit to a Wild Flower Nursery. Mrs. L. Richfield,
Bloem Erf, Stellenbosch. Cars meet Stellenbosch
Post Office 3.15 p.m.

Saturday, 4th October, 11 a.m.

Annual Gathering of Members, Kirstenbosch.
Followed by WILD FLOWER SHOW, Lecture Hall,
Kirstenbosch.

Sunday, 5th October.

Continuation of WILD FLOWER SHOW. Lecture Hall,
Kirstenbosch.

Saturday, 15th November, 3 p.m.

Visit to the garden of Mr. and Mrs. Lancelot Ussher,
'Luncarty', Rhodes Avenue, Newlands. Cars meet
Kirstenbosch Main Entrance 2.45 p.m.

Members are cordially invited to bring their friends along to the above Meetings.

***Have Your Friends Joined the
Society Yet? If Not, Why Not?***

A MEMBERSHIP FORM IS ENCLOSED IN THIS JOURNAL

Gasteria—A Problem Genus of South African Succulent Plants

By DR. E. A. C. L. E. SCHELPE
(Curator, Bolus Herbarium, University of Cape Town)

SUMMARY

THE multiplicity of published species of *Gasteria* is ascribed to the ease of introduction of these plants to gardens in Europe and to the lack of appreciation of the variability of these plants in the field by the authors who described them. The variation ranges known to occur in a number of species are discussed in relation to habitat conditions and the view is expressed that most of the species of the *G. decipiens* complex are probably perpetuated juvenile forms.

INTRODUCTION

In 1956, a visiting American cytogeneticist, Prof. H. P. Riley, requested the author to identify a number of specimens of *Gasteria* that he had collected during his stay in South Africa. This resulted in a shamefaced admission that the systematics of the genus were in such a chaotic state that few of his specimens could be given definite identifications. However, this confession had the effect of initiating a serious attempt at unravelling the *Gasterias*.

One reason for this chaos is the multiplicity of described species. This is largely due to the fact that these plants easily survived the voyage to gardens in Europe and that the authors describing new species on such cultivated plants had little or no idea of the variability of *Gasterias* in their natural habitats. Frequently authors described imported plants as new species before they had even flowered.

In view of the rules of priority in botanical nomenclature, it is imperative to establish the identity of the species described by the earlier authors. With many of these, the descriptions are largely inadequate and no mention is made of the locality in South Africa where the plants were collected. If a dried specimen of the plant still exists in one of the overseas herbaria it is usually so fragmentary that it is of little use. Consequently, one has to fall back upon illustrations of all degrees of accuracy, and inaccuracy, to establish the identity of such a species.

At first, along with the *Haworthias*, the *Gasterias* were regarded as species of *Aloe*. The earliest described *Gasteria* appeared in Linnaeus's *Species Plantarum* under the name of *Aloe disticha* and is apparently typified by an illustration of 1701 in Commelin's *Hortus Amstelodamensis*. It seems probable that the plant was collected by Oldenland on the Bergh and Schryver expedition. Another early illustration of a *Gasteria* is that in Dillenius's *Hortus Elthamensis* published in 1732. Thunberg added another species with a rather inadequate description and without an illustration.

The identity of these 'early' *Gasterias* poses an interesting problem. The only solution seems to lie in superimposing the routes of the early travellers on the present-day distribution maps of *Gasteria* species to find out what species they *could* have collected. The one species from this narrowed choice which matches most closely the short description and any illustration cited will have to be taken as that to which the name is applicable.

The next phase in the history of *Gasterias* began with the arrival in England of plants collected by Bowie in South Africa between the years 1819 and 1826. Many of these were described by Haworth, who in 1827 wrote a synopsis of the genus, recognizing forty-two species and using the generic name of *Gasteria*, proposed by Duval eighteen years before. This was followed by the publication of exquisite figures of some thirty-two *Gasterias* in the Prince Salm-Dyck's monograph of the *Aloes* and *Mesembryanthemi* between 1840 and 1863. It is undoubtedly the most valuable single publication to the modern student of *Gasteria*.

The *Gasterias* sent to England by Cooper from the eastern Cape Province between 1858 and 1862, while collecting for the Royal Horticultural Society and Wilson Saunders, provided fresh interest in the genus. A number of Cooper's plants were figured in the *Botanical Magazine* and the *Refugium Botanicum*. These had been described by Baker, who, in 1880, published his *Synopsis of the Aloineae and Yuccoideae*. In this work, he recognized

forty-five *Gasterias*, including four suspected hybrids between *Gasteria* and the related genera, *Aloe*, *Astroloba* and *Haworthia*. Twenty-eight years later, Berger's treatment of the genus appeared in the *Pflanzenreich* with little modification of Baker's species concepts but with the addition of many horticultural hybrids.

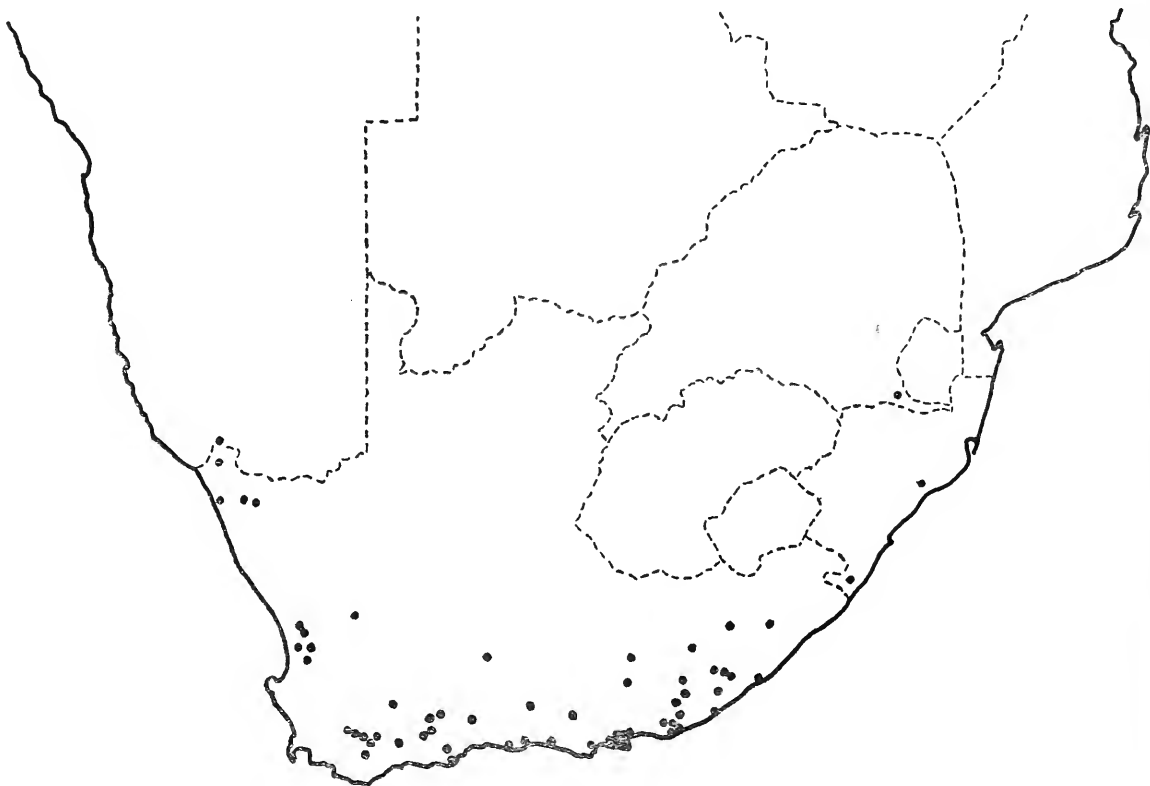
A number of recent authors have added new species to the genus but the most prolific of these was Karl von Poellnitz, the author or part author of no less than twenty-four new species. The net result of taxonomic activity in this genus since Linnaeus is a total of just over a hundred validly published species of *Gasteria*.

Although twenty-four of these are regarded as synonyms in the *Index Kewensis*, it is the author's view from as yet limited field experience, that many of the remainder will also have to be relegated to the limbo of synonymy.

VARIATION IN THE *G. MACULATA* COMPLEX

It was not long after the author began intensive studies of populations of *Gasterias* in the field that the

usefulness of many of the characters employed in the past in the distinction between species of the genus became very questionable. The first of these characters was the distichous as opposed to the spiral or multifarious arrangement of the leaves. Although some *Gasterias*, such as *G. pillansii* and related species always retain the distichous arrangement of their leaves even into senility, many other *Gasterias*, like *Aloes*, exhibit the distichous arrangement in juvenile plants, a condition which changes to spiral or multifarious arrangement as the plant matures in a favourable environment. In the *G. maculata* complex, this juvenile distichous arrangement is perpetuated in those plants of a population which happen to be heavily shaded by bushes around them. In the same population, those plants growing in exposed situations develop spiral and multifarious leaf arrangement early in their development. Similarly, when the same species complex occurs in a drier area, the vast majority of the specimens seen exhibit spiral leaf arrangement with only seedlings



Map showing the distribution of known localities of *Gasteria*.



PLATE IV

Gasteria illustrated in Salm-Dyck's monograph of the Aloes and Mesembryanthemi.



A. maculata.

(S. 29. — Fig. 1.)

PLATE V

Gasteria illustrated in Salm-Dyck's monograph of the Aloes and Mesembryanthemi.

showing a truly distichous arrangement. Also in such drier habitats *weakly* spiral leaf arrangement is found only in those adult plants growing in very deep shade. Therefore it seems that the degree of exposure to sunlight, coupled with available moisture, has much to do with the leaf arrangement a single plant in a population is liable to develop.

Another character which has been regarded as being of some importance is the shape of the leaf, especially the apex of the leaf. Here again, individual plants of the same population exhibit relatively wide variations within feet of one another depending upon the degree of exposure to sunlight. A marked example of such wide foliar variation was exhibited by a population of the *G. maculata* complex at Amsterdam Hoek, near Port Elizabeth. A whole range of plants from those with long distichous leaves with acute apices in shaded situations to those with short multifarious leaves with obtuse apices in sunny situations was observed within an area of a few square yards.

Although the name *G. maculata* has been applied in the broad sense to the common *Gasteria* in the Port Elizabeth and Uitenhage areas, there is still some doubt as to whether this name is correctly applied. According to Thunberg in his *Flora Capensis* he collected his plant in the Outeniqua Mountains. Salm-Dyck illustrated a plant which he referred to Thunberg's *Aloe maculata* but no plant resembling this illustration is as yet known from the southern slopes of the Outeniquas where Thunberg travelled. Consequently, assuming that Thunberg's citation of the locality is correct, it is probable that his *Aloe maculata* is applicable to an entirely different species of *Gasteria*. Unfortunately there is no illustration cited or prepared by Thunberg to amplify the meagre description of his plant. A detailed knowledge of the Outeniqua *Gasterias* and an examination of the type specimen might provide an answer.

THE *G. PILLANSII* COMPLEX

Another group of species hails from the north-western Cape Province. This group includes *G. pillansii* L. Bolus from near the Algeria turnoff, *G. neliana* v. Poell. from Clanwilliam and *G. ernestii-ruschii* Dinter & v. Poell. from the Lorelei, just across the border of the Cape, in South West Africa. Specimens from the type localities of all three species as well as specimens from the Calvinia district, the Richtersveld and various localities in Namaqualand are now in cultivation at Kirstenbosch. The plants from the drier areas are becoming plumper and are losing their red colour under the more humid conditions of the Cape Town winter. It now seems

highly probable that these three so-called species are no more than habitat variants of a single species, *G. pillansii*.

Recently Mr. Harry Hall has collected mats of a very small *Gasteria* from rock crevices on the Oograbies Hills near Port Nolloth. The plants have the rough leaf surface characteristic of *G. pillansii*, and in the author's view they are merely perpetuated juveniles of that species. However, an inflorescence is required from these plants under cultivation to support or refute this view.

VARIATION IN *G. OBTUSIFOLIA* AND *G. TRIGONA*

Recently, the author planned an excursion to investigate the range of variation in the common *Gasteria* of the Worcester-Robertson Little Karoo, provisionally referred to *G. obtusifolia*. Marked differences in the length, coloration, maculation, and thickness of leaves between those of heavily shaded plants and those of fully exposed plants were found. The extreme shade forms corresponded to the illustrations of *G. lingua* (Thunb.) Berger, a name which cannot be upheld since Thunberg's *Aloe lingua* refers not to a *Gasteria* but to *Aloe plicatilis*. An extreme xeromorphic form of the *G. obtusifolia* complex with short thick leaves was collected near Van Wyk's Dorp which is probably *G. joubertii* v. Poell.

Another *Gasteria* population investigated on this excursion was one in which the 'sun forms' were referable to *G. trigona*. These plants were growing on steep coastal slopes a few miles east of Mossel Bay. All the adult plants showed spiral or multifarious leaf arrangement but the exposed 'sun forms' had short, rather pale green, three-cornered almost erect leaves while the 'shade forms' under bushes exhibited long, curved, deeply channelled, sprawling, dark green leaves. This is one of the most striking variation ranges yet seen by the author in a single population.

THE *G. BECKERI* — *G. DECIPIENS* — *G. STAYNERI* — *G. ARMSTRONGII* COMPLEX

The realization by the author that perpetuated juvenile forms, incorporating characters other than the transition from distichous to multifarious leaf arrangement, might be occurring among *Gasterias* has further complicated the unravelling of the genus. The first inkling of the possibility of such a phenomenon arose soon after examining plants of *G. stayneri* and *G. armstrongii* in their type localities under the guidance of Mr. Frank Stayner of Port Elizabeth. A few miles from the type locality of *G. armstrongii* the author stumbled upon a colony of plants referable to *G. beckeri*. About

the bases of the multifarious, smooth-leaved adult *G. beckeri* plants were a number of 'suckers' exhibiting a surprising range of variation in leaf characters. The larger and presumably older 'suckers' had coarsely tuberculate, spirally arranged leaves similar to those seen in many plants of *G. stayneri*. The smaller 'suckers' had distichous, finely tuberculate leaves comparable to those of many individuals of *G. armstrongii*. This colony was growing under the shelter of a small *Metalasia* bush in deep, red loam. Not far away, in the shallow soil overlying a rock outcrop a small colony of plants referable to *G. stayneri* was found.

At Korsten, near Port Elizabeth, plants of *G. stayneri* in the vicinity of the now built over type locality, also showed some variation. Besides larger plants with rosettes of coarsely tuberculate or smooth acute leaves there were smaller plants and 'suckers' with distichous, obtuse, finely tuberculate leaves similar to some forms of *G. armstrongii*.

The adult and juvenile plants from a number of populations of the *G. beckeri* complex have now been studied. As a result, certain series of changes in leaf characters appear to be associated with decreasing juvenility and increasing adulthood. The change from a distichous to a spiral and multifarious leaf arrangement, common in many *Gasterias*, has already been mentioned. This is correlated with a change from a densely and finely tuberculate juvenile leaf condition to an adolescent leaf condition with widely spaced coarse tubercles to the smooth, variously spotted adult leaf condition. Another correlated transition series is the change from an oblong juvenile leaf form with an obtuse, mucronate apex to a concave triangular adult leaf form with a sharply acute apex.

The fact that these transition series do not necessarily proceed concurrently or at the same rate is shown by some distichous plants which are larger than average *G. armstrongii* with leaves which are coarsely and not finely tuberculate. Also, two stages in a transition series can occur on the same leaf such as the median groove being smooth and the apex coarsely tuberculate.

Judging from the character of the surrounding vegetation, it seems that typical *G. armstrongii* grows in the driest parts of the distribution range of this species complex whereas typical *G. beckeri* is found in the more moist parts in deep, apparently fairly rich soil. Typical *G. stayneri* seems to occur under intermediate conditions. Therefore, taking into account both the habitats of these species and the overlapping series of leaf character changes shown by the 'suckers' of both *G. beckeri* and

G. stayneri, it seems probable that *G. stayneri* and *G. armstrongii* are perpetuated juvenile forms of *G. beckeri* halted in their progress towards a full expression of adulthood by adverse climatic or soil factors.

Gasterias are generally slow-growing plants and the specimens of this species complex at Kirstenbosch have not yet been long enough in cultivation to show a transition from one species to another on a single plant. Comparable changes in a *Gasteria* of a different species complex have occurred at Kirstenbosch during a period of two years, so that it is not improbable that a *G. stayneri* might begin producing *G. beckeri* leaves under the more favourable conditions of cultivation.

Another problem connected with this species complex is whether or not it is conspecific with Haworth's *G. decipiens*. This plant was first described by Haworth as an *Haworthia*, but he later renamed it when, to his surprise, it produced the flowers of a *Gasteria*. Baker, in the *Flora Capensis*, reported that the young plant was similar in appearance to *H. viscosa*. Haworth and later authors also noted that although the juvenile leaves were obtuse, mucronate and tubercled, later leaves that were produced were acute and smooth. The figure of *G. decipiens* in Salm-Dyck's monograph could well be one of an overfed and thoroughly turgid *G. beckeri*. In addition the flowers shown in this illustration agree with those of the *G. beckeri* complex. On the available evidence, it therefore seems probable that *G. decipiens* Haw. is the correct name for the complex, and that the names *stayneri* and *armstrongii* will only be useful to denote habitat forms of the species.

CONCLUSION

Although this paper is merely a report on preliminary work on *Gasterias*, the progress that has been made in a relatively short time would not have been possible without the unstinted co-operation of Mr. Frank Stayner of Port Elizabeth and Mr. Harry Hall of Kirstenbosch in collecting material and data. A recent important individual contribution has been the discovery by Mr. Theo Sprengel of *G. batesiana* in its natural habitat near Piet Retief. Until this discovery was made the species was only known from cultivated plants of unknown origin.

The map of the *Gasteria* localities known so far indicates the gaps in our knowledge of the distribution of these plants, let alone the range of variation shown by different species in the field. Consequently, the author would appreciate any further information on localities where *Gasterias* are known to grow so that the combined knowledge might eventually lead to a sound understanding of this critical genus.



A range of 'suckers' from a colony of *G. beckeri*. The 'sucker' attached to the adult plant (*left*) resembles *G. stayneri*; the two detached 'suckers' on the extreme right resemble *G. armstrongii*.



A shade form (*left*) with shading bushes removed and a sun form of *G. obtusifolia* growing near Robertson.



Mrs. J. S. Linley receiving the H. B. Rycroft and The Mr. & Mrs. Frank Connock Trophies from His Excellency The Governor-General at the Wild Flower Show, 1958.



PLATE VII.
Events at
Kirstenbosch,
1958.

Official opening of the Compton Herbarium. Professor R. H. Compton (*right*) with Dr. C. A. Lückhoff, Chairman, Board of Trustees, National Botanic Gardens of South Africa, and Professor H. B. Rycroft.



Presentation of Illuminated Address to Dr. W. Duncan Baxter on his retirement as Chairman of the Board of Trustees of the National Botanic Gardens of South Africa and President of the Botanical Society of South Africa.



The Gold Medal.



Mr. Eric Louw, Minister of External Affairs, presenting the Gold Medal awarded to Kirstenbosch at the International Flower Show, New York.

THE BOTANICAL SOCIETY OF SOUTH AFRICA

CONSTITUTION

I. NAME. The Society shall be called 'The Botanical Society of South Africa'.

II. OBJECTS. The objects of the Society are:

(1) The promotion of the interests of the National Botanic Gardens of South Africa established under the Trustees of the National Botanic Gardens of South Africa.

(2) The preservation of the native flora of South Africa. The Society therefore endeavours:

- (a) To encourage the people of South Africa and other countries in the progress and development of the National Botanic Gardens of South Africa at Kirstenbosch, and any other Garden that may be established by the Trustees of the said National Botanic Gardens of South Africa.
- (b) To augment the Government and other grants towards developing, improving and maintaining the National Botanic Gardens of South Africa at Kirstenbosch and any Garden referred to in the preceding subsection.
- (c) To organize shows at which may be displayed the results of botanical experiments of cultural skill in improving the different varieties of South African flora.
- (d) To enlighten and instruct on botanical subjects by means of meetings, lectures and conferences and by the distribution of literature.
- (e) To promote the preservation of the native flora of South Africa, to encourage public interest in it, and to co-operate with the Public Authorities and others in the attainment of this object.

III. MEMBERSHIP

(1) The Society and its branches shall consist of persons who have signified their assent to be members thereof and who have paid the required subscription to the Society.

(2) There shall be eight classes of members:

- (a) Honorary Life Members.
- (b) Benefactors, subscribing not less than £500 over a period of two years or less.
- (c) Patrons, subscribing not less than £100 in one payment.
- (d) Life Members, subscribing not less than £25 in one payment.
- (e) Corporate Members, subscribing not less than £5 per annum, shall be entitled to a maximum of two votes at any general meeting of the Society. Names of nominees to be submitted to the Secretary 30 days before the meeting.
- (f) Family Members, subscribing not less than £2 10s. *od.* per annum shall be entitled to a maximum of two votes at any general meeting of the Society.
- (g) Ordinary Members, subscribing not less than £1 10s. *od.* per annum.
- (h) Associate Members, subscribing not less than 10s. per annum and being resident in the Union of South Africa, South West Africa and Central African Federation only.

(3) Family and Ordinary Members, who have paid subscriptions for a period of not less than 20 years, shall thereafter upon application be entitled to be enrolled as Life Members upon payment of a subscription of £10.

(4) Suitably inscribed certificates will be issued to members in classes (a), (b), (c), (d) and (e).

(5) Firms, Municipalities, Societies, Institutions, etc., are eligible for membership in classes (b), (c), (e) (f), (g) and (h), but not in classes (a) and (d). If in addition they make donations of £25 or more suitable inscribed certificates will be issued.

(6) Associate Members shall enjoy the privileges of membership, but shall not vote at any of the meetings of the Society. Honorary Life Members may be elected at a meeting of the Society on the nomination of the Council.

(7) Any member desirous of specially assisting in Object II(2)(e) namely: The preservation of the Native Flora, may give a minimum annual subscription of 5s. in addition to the subscription above prescribed for the class to which he belongs. The amount of such additional subscription, less 5 per cent for costs of administration, shall be devoted to the furtherance of this object.

(8) Members' subscriptions are due and payable on the 1st January in each year, and must be paid by the 30th September, provided that new members joining the Society after 30th September in any year, and having paid their subscriptions will not be liable for any further subscriptions until the end of the following year.

(9) Any member who wishes to resign from the Society must give notice of his intention to do so on or before the 31st December in any year.

(10) The Council shall have the power to refuse or cancel membership.

(11) The Society will admit to affiliation Societies having as their aim in whole or in part the preservation of the Native Flora and these shall be known as Affiliated Societies. Any such Society shall contribute towards the funds of the Botanical Society annually a sum of 1s. in respect of each of its members with a maximum of £5, provided that such a Society shall be at liberty to stipulate what part, not exceeding 50 per cent of the sum thus contributed shall be devoted to the preservation of the Native Flora. An Affiliated Society shall be entitled to send not more than three delegates to General Meetings, such delegates having the right to vote.

IV. MANAGEMENT

(1) There shall be a Council, with headquarters at Kirstenbosch, which shall have full control of all the affairs of the Society and its branches, and this Council shall consist of not more than:

- (a) one President;
- (b) three Vice-Presidents;
- (c) fifteen Members;
- (d) one representative from each Branch.

(2) The Council may form branches throughout the Union of South Africa, consisting of members in the particular area, and each Branch shall bear the name of its area of operation, followed by the words '... Branch of the Botanical Society of South Africa'.

(3) Each Branch shall annually elect a Committee of not more than seven persons to handle its affairs. The Committee shall appoint a Chairman and Secretary/Treasurer from its members.

(4) Each branch shall be entitled to nominate one representative to serve on the Council. The representative may appoint an alternate.

(5) The Cape Western Area shall not have a Branch separate from the Council, appointed at each Annual General Meeting, and

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

the affairs of this area shall be arranged by the Secretary of the Society.

(6) The President and Vice-Presidents shall be *ex officio* members of the Council.

(7) Any member of the Council resident more than 50 miles from Cape Town shall have the right to appoint an alternate (who must be a member of the Society) to represent him at any meeting of the Council at which he is unable to be present.

(8) The Council shall have power to appoint a representative or representatives of the Society, as may be required, to act with representatives of the Government and such other bodies as may be agreed upon, as Trustees of the National Botanic Gardens; and to frame such rules and regulations as may be thought to be fit for the conduct of the business of the Society. Such rules and regulations shall not come into force until approved by a General Meeting of the Society.

(9) The Council shall elect from amongst its number a Chairman, Vice-Chairman, and shall have power to appoint Sub-Committees for any special object and to delegate to such Sub-Committees the functions and powers of the Council relating thereto.

(10) Any member of the Council absenting himself from the Council for two consecutive meetings without leave will be considered to have vacated his seat and shall be informed accordingly by the Secretary. The Council may grant leave of absence to any of the members of the Council for such period as the Council may deem fit.

(11) In the event of any vacancy occurring on the Council after the annual appointment by the Society the Council shall have the power of filling such vacancy.

(12) The Council shall meet at Kirstenbosch at least once a quarter, such meetings being held during March, June, September and December, or at such other times and places as the Council may decide. Twenty-one days' notice of all meetings with the agenda or business to be discussed shall be given to each member of the Council and the Committees of the Branches.

(13) Seven members shall form a quorum of any meeting of the Council.

(14) Admission of new Branches: Upon application the Council shall be empowered to establish such Branches as local conditions warrant or govern.

(a) Such new Branches shall submit their proposed regulations, which shall be consistent with the Constitution of the Society, to the Council for approval and they shall define the proposed area in which their Branch will operate.

(b) A Branch shall be responsible for maintaining the interest of current members of the Society, and the Branch shall receive an allowance per annum to cover its expenses. Such allowance will be determined by the Council annually. Any excess of allowance over the expenditure by the Branches, will be paid to the Society at the end of the financial year.

(15) The Society is a juristic person and is entitled to own and receive transfer of, to purchase, sell, take on lease or in exchange, hire or let, accept as gift or bequest, any movable or immovable property. Such movable or immovable property shall vest in the Council, who shall have all control over such properties.

V. COMMITTEE FOR PRESERVATION OF NATIVE FLORA

(1) At the first meeting of the Council after the Annual General Meeting there shall be appointed a special Committee for the Preservation of the Native Flora, in the Cape Western area, consisting of nine Members, which Committee shall be entrusted with the control and management of this aspect of the Society's activities as also of the funds specially donated or subscribed for that purpose. The Committee shall annually render a report and statement of

accounts to the Council which shall be embodied in the Annual Report and Financial Statement of the Society.

(2) At the first meeting of the Branch Committees after the Annual General Meeting of the Society they shall, if desired, appoint a Committee for the preservation of Native Flora for their Branch, consisting of five members. Each Committee shall be entrusted with the control and management of this aspect of the Society's activities in their Branch and also of the funds specially donated and subscribed for that purpose.

(3) These Committees will annually render a report and statement of accounts to their Branch which shall be embodied in the Annual Report and Financial Statement of this Society.

(4) In areas where no such Committees are established, the Cape Western area will be responsible for all matters pertaining to the preservation of Native Flora.

(5) All such committees may co-opt additional members.

VI. ALLOCATION OF FUNDS

(1) The following funds shall be devoted exclusively to the promotion of the object of the Society in II(1) hereof, namely, all funds derived from the classes of members in paragraph III(2)(b), (c), (d), (e), (f), (g), (h) and any voluntary donations made for this purpose.

(2) The funds for the promotion of the object of the Society in II(2)(e) hereof shall be derived from the special subscriptions mentioned in paragraph III(7) from the contributions of Affiliated Societies as mentioned in III(11); and from any voluntary donations or grants made for this purpose.

VII. CONTROL OF FUNDS

(1) The Council shall have the sole power to deal with all funds payable to the Society, but at the commencement of each financial year shall make a fair estimate of what sum will be required to carry out the objects of the Society and its branches, shall grant the remainder to the Trustees of the National Botanic Gardens.

(2) All subscriptions from members in classes (b), (c) and (d) of section III(2) shall be invested and only the annual income from the same shall be paid into the General Fund, until such time as the capital sum may be required for some permanent improvement of the National Botanic Gardens of South Africa when the Council shall have the power to pay over the capital sum to the Trustees; provided that a majority of members of the whole Council shall have agreed thereto at a meeting duly called.

(3) The financial year of the Society shall be from the 1st January to 31st December.

VIII. ANNUAL GENERAL MEETING

(1) The Annual General Meeting of the Society shall be held in March of each year at Kirstenbosch at such a time as the Council may determine after giving to members 21 days' notice and a copy of the agenda.

(2) Business at the Annual General Meeting shall be:

- (a) Annual Report of the Council.
- (b) Annual Reports of the Branches.
- (c) Financial Statement.
- (d) Election of President, Vice-Presidents, Honorary Secretary, Hon. Treasurer and representatives.
- (e) Consideration of notices of motion (such notices shall be submitted to the Council 30 days prior to the date of the Annual General Meeting).
- (f) Any other business, with the permission of the Chair.

(3) One or more auditors shall be elected annually, at the Annual General Meeting or at such other meetings as may be called specially for the purpose, who shall examine the books and accounts of the Society, and report thereon annually. Should no auditor be elected

or should any vacancy occur, the Council may nominate the auditor or fill any vacancy.

(4) The quorum of all General Meetings, special or otherwise, shall be 20.

(5) If a quorum be not present the meeting shall stand adjourned, until such time and place as the Council may determine.

(6) The President for the time being, or in his absence, one of the Vice-Presidents, shall preside at any General Meeting, and if the President and Vice-Presidents be absent, the meeting shall elect one of the members to be Chairman.

IX. SPECIAL GENERAL MEETING

(1) A Special General Meeting of Members may at any time be called by the Council and shall be called at such time and place as

the Council may decide on the receipt of a requisition to the Council signed by at least 20 members. Such requisition shall state specially the reason for such meeting and the matters to be discussed. If no quorum be present the matter shall drop.

(2) No other business than that for which the special meeting is called shall be transacted.

X. CHANGE IN CONSTITUTION

The constitution shall in no way be varied, altered or annulled, except by a two-thirds majority of the members present and voting at an Annual General Meeting or at any Special General Meeting called for the purpose and in either case ninety days' notice of a motion so to vary, alter or annul the constitution shall be given, provided that any member will be entitled to vote by proxy.

AN APPEAL FOR MATERIAL AND INFORMATION

By E. MILNE-REDHEAD (Kew Gardens)

An appeal has been made for material and information about three imperfectly known South African Species of *Dioscorea*.

In the genus *Dioscorea* the nature of the tuber and the characters of the ripe fruit and seed are very important taxonomically, particularly with regard to sectional classification.

In preparing a conspectus of the African species, Mr. I. H. Burkill and I have been unable to place three South African species, *D. burchellii* Baker, *D. stipulosa* Knuth and *D. brownii* Schinz in their respective sections because they are known only from leafy flowering shoots taken from *male* plants.

The species may be distinguished as follows:

1. Stems becoming woody, terete, much branched and (probably) climbing into bushes; leaf-blades narrowly triangular, lanceolate or ovate-lanceolate, with or without slight basal lobes, acute, rounded or slightly cordate at the base, flat, with 3-5 nerves from the base . . . 2
Stems herbaceous, angular, with a tendency to twine in upper part, (apparently) unbranched; leaf-blades narrowly triangular, up to 9 cm. long, without a basal lobe, acute, rounded or broadly cuneate at the base, somewhat folded, with 3-7 nerves from the base *brownii*
2. Leaf-blades without basal lobes, up to 3.5 cm. long; flowers held \pm at right-angles to the rhachis of the raceme; perianth broadly funnel-shaped; stamens 6 *stipulosa*
Leaf-blades often with poorly developed basal lobes, up to 5.5 cm. long; flowers pointing forwards in relation to the rhachis of the raceme; perianth narrowly funnel-shaped; stamens 3 *burchellii*

D. brownii is known only from Griqualand East, Zuurberg, where it was collected in flower in December 1883 by *W. Tyson* at the edge of montane forest at about 4,500 ft. altitude. A specimen from Natal, Alexandra [Umzinto] Division, Dumisa collected in flower by *H. Rudatis* on 26 November 1910 may be the same.

D. burchellii similarly is known only from a single gathering, namely from George Division, forest near Touws River where it was collected in flower on 20 August 1814 by *W. J. Burchell*.

D. stipulosa (which has in the past been confused with *D. burchellii*) is known from Katberg, *Hutton*, from Kaffraria, *Barber*, from George, *Schlechter*, and from King William's Town Division, Hogsback Mountain, where it was found in flower by *G. Ratray* growing among low bushes in January 1919.

It would be most helpful if botanists in South Africa would try to rediscover any or all of these three species, and collect both male and female flowering material, fruiting material and ripe seed. I should be glad to know what kind of tuber each species possesses. A photograph or drawing of the tuber to show the shape and size should be made even if the actual tuber is collected with the specimen, and I should be interested to know whether it is perennial or replaced annually.

Any assistance that can be given would be greatly appreciated and would be acknowledged by me personally. Specimens may be sent to Kirstenbosch.

THE BOTANICAL SOCIETY OF SOUTH AFRICA

ANNUAL REPORT FOR THE YEAR ENDED 31 DECEMBER 1957

YOUR Council has pleasure in presenting the Forty-fourth Annual Report of this Society for the year ended 31 December 1957.

Five meetings of Council were held.

FINANCIAL. The financial position of the Society, full details of which appear on the Balance Sheet, remains sound. Revenue received during the year is as follows: Subscriptions £3,293 6s. 3d., Donations £89 9s. 0d., Interest on investments £123 5s. 8d. making a total of £3,506 0s. 11d. Expenditure of the Society was £1,081 18s. 8d. leaving a balance of £2,424 2s. 3d., which sum constitutes the Society's grant to the Trustees of the National Botanic Gardens in respect of the year. This grant is the largest yet paid to the Trustees since the formation of the Society in 1913.

MEMBERSHIP. Full membership is now 3,000. During 1957 a total of 434 new members were enrolled. Resignations and deaths totalled 80, and 165 members two years or more overdue with their subscriptions were struck off. Net gain during the year was 189.

NEW CONSTITUTION OF THE BOTANICAL SOCIETY. Over the period of the last twelve months much time and study has been given to the Constitution of the Society which it was felt was in need of revision. The Subcommittee appointed concluded its investigations in November in consequence of which a Special General Meeting of Members of the Botanical Society was called for 26 November 1957 in the Lecture Hall, Kirstenbosch. The business of this meeting was to discuss and, if approved, to amend the Constitution. About 30 members attended. The President, Mr. D. R. D'Ewes, briefly outlined the Draft Constitution and then called upon Mr. S. Macpherson to clarify the amendments. In his review, Mr. Macpherson said that the main object in amending the Constitution which had not been revised since 1948, was to bring it up to date in accordance with the expansion of the Society. The objects and principles of the old Constitution had not been altered. The principal amendments were extra classes of membership, these being 'Benefactors' subscribing not less than £500, 'Patrons' subscribing not less than £100, and 'Corporate' members, subscribing not less than £5 per annum.

Provision for branches of the Society was allowed for. An important clause included in the new Constitution was to the effect that the Botanical Society of South Africa is now a juristic person by means of which it is entitled to own and receive transfer of, to purchase, sell, take on lease or in exchange, hire or let, accept as gift or bequest any movable or immovable property. The revised Constitution being agreed upon it was formally accepted.

RESIGNATION OF THE SOCIETY'S REPRESENTATIVE ON THE BOARD OF TRUSTEES OF THE NATIONAL BOTANIC GARDENS OF SOUTH AFRICA. It was with sincere regret that the resignation from this Board of Dr. W. Duncan Baxter, on account of advancing years, was received by Council. Mr. Milton Clough was unanimously elected to succeed Dr. Baxter, with Mr. S. Macpherson as alternate. An appreciation of Dr. Baxter's long years of service, both as a Trustee and a Member of the Council of the Botanical Society, was accorded him by the presentation of an Illuminated Address from the Council, Trustees and Staff of the Gardens.

CAPE TERCENTENARY AWARD. The Council warmly congratulates one of its members, Miss E. L. Stephens, on her award of £400 from the Cape Tercentenary Foundation in recognition of her work on Cape flora and in particular her efforts in the establishment of the Cape Flats Flora Reserve. Miss Stephens has donated her award to this Reserve.

EMBLEM OF THE SOCIETY. For some time the Council has turned its attention to the establishment of a suitable emblem for use on the Society's stationery, etc. A Subcommittee, under the Chairmanship of Mr. J. S. Linley, is at present dealing with this matter.

EXEMPTION FROM STAMP DUTY ON RECEIPTS. This was granted to the Society by the Department of Revenue during the year.

'WILD FLOWERS OF THE CAPE OF GOOD HOPE.' Sales of this book continue steadily. An amount of £400, representing sales, was paid over to the Trustees of Kirstenbosch during the year. A total of £1,750 has

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

now been paid over to the Trustees. There remains a balance of 3,830 books in stock.

'JOURNAL OF THE BOTANICAL SOCIETY', Part XLIII, was published in September. Copies were sent to members, learned institutions, etc., all over the world. The Council records its sincere thanks and appreciation to all contributors to the Journal over the years, and in particular, Professor H. B. Rycroft, the Editor. Judging by correspondence received there is no doubt but that the Journal makes pleasant reading. The articles on the cultivation of the indigenous flora seemingly have a wide appeal. It is hoped to include one such in each issue.

SEED DISTRIBUTION. A total of 17,210 packets of seeds was distributed from the National Botanic Gardens to members during 1957.

WILD FLOWER SHOW. His Worship the Mayor of Cape Town, Col. J. W. O. Billingham, who is also a member of the Society, officially opened this Show on Saturday, 4 October. Despite extremely wet weather thus preventing many members from exhibiting, the Show was most successful. More entries than in former years were received and the quality of the exhibits exceeded all previous Shows. The Wild Flower Trophy, presented by Professor H. B. Rycroft for the most outstanding exhibit, was won by Mr. J. S. Linley.

MEETINGS OF THE SOCIETY. The following were held:

26 February. Talk by Mr. A. J. M. Middlemost. 'Garden Frames and Shade Houses.'

26 March. Annual General Meeting. Illustrated talk by Professor H. B. Rycroft. 'Proteaceae.'

28 May. 'Silver Tree Disease.' Talk by Miss D. L. Olivier.

29 June. 'The Botanical Society and the National Botanic Gardens.' Talk by Professor H. B. Rycroft. Technical College, Pretoria.

10 September. 'Hints on Staging Exhibits at the Wild Flower Show.'

21 September. Anniversary Meeting, Karoo Garden, Worcester.

5 October. Annual Gathering of Members. Wild Flower Show.

6 October. Continuation of Wild Flower Show.

19 October. Visit to Mr. & Mrs. A. J. A. Simpson's Garden.

16 November. Demonstration on seed collecting and cleaning.

ELECTION OF OFFICE-BEARERS. As elected at the Annual General Meeting of the Society held in March:

President: Mr. Dudley R. D'Ewes.

Vice-Presidents: Mr. C. J. Sibbett, Professor H. B. Rycroft, Professor R. H. Compton.

Council Members:

Dr. A. J. Ballantine

Mr. W. R. Baylis

Dr. G. J. Broekhuysen

Mr. M. Clough

Dr. A. L. Geyer

Mr. C. R. Gohl

Professor W. E. Isaac

Dr. W. P. U. Jackson

Miss M. E. Johns

Mrs. M. R. Levyns

Dr. G. J. Lewis

Mr. J. S. Linley

Dr. C. A. Lückhoff

Mr. S. Macpherson

Miss K. Murray

Mr. H. N. Porter

Mr. L. A. Solomon

Miss E. L. Stephens

Mr. M. F. Stern

Mr. G. E. Williamson

Mr. C. J. Sibbett was re-elected to the Chair at the first meeting of the Council.

THANKS. The Council of the Botanical Society hereby records its sincere appreciation to all those who in any way helped at meetings of the Society. Special thanks to Mr. & Mrs. J. Thudichum, Karoo Garden, Mr. & Mrs. A. J. M. Middlemost, Mr. & Mrs. A. J. A. Simpson, who entertained about 150 members to tea in their garden, and to the staff of Kirstenbosch for their services as judges at the Wild Flower Show. Also to the Cape Provincial Administration for the use of its rooms for meetings of Council, and to the daily Press for its willing help and co-operation at all times.

OBITUARY. The Council is sad to record the deaths of 17 members of the Society during the year. Letters of condolence have been sent to all known relatives.

C. J. SIBBETT

Chairman

(MRS.) W. N. HALL

Hon. Secretary/Treasurer

Wild Flowers Protection Section Committee

ANNUAL REPORT FOR THE YEAR ENDED 31 DECEMBER 1957

Annual Report of the Wild Flowers Protection Committee, Botanical Society of South Africa, for the year ended 31 December 1957.

There were three meetings of the Committee.

FINANCIAL. The financial assets of the Section, fully detailed on the Balance Sheet, amount to £1,453 19s. 6d. Of this £682 6s. 4d. is placed on fixed deposit. Film equipment £324 18s. 0d. Balance in the bank £446 15s. 2d. Subscriptions received during the year were £296 1s. 1d., an increase of £13 14s. 8d. over the previous year. The surplus in respect of the Wild Flower Show, gross takings of which were £97 0s. 3d., was £38 4s. 5d.

INSPECTION REPORTS. Mr. H. D. W. Meyer, appointed officer of the Section, together with officials of the Cape Provincial Administration, has visited 'sites' and nurseries of registered wild flower nurserymen both locally and as far afield as Hermanus. Satisfactory reports were received in respect of all but five cases. In addition, the properties of four intending wild flower nurserymen were inspected, all of whom were recommended for registration.

WEEK-END PATROLS. The Committee is deeply indebted to the Cape Provincial Administration for enabling Mr. Meyer to accompany its officials on week-end patrols into the country to check on roadside picking and selling of wild flowers. Many of the offenders caught have been children, and the officers have taken much time and trouble to contact the parents in an effort to stop this illegal practice.

WILD FLOWER SHOWS. The usual visits have been made to these in various parts of the country. All of these Shows appear to have been very well organized, strict attention being observed in respect of permits granted to collect flowers for exhibition.

CONTRAVENTIONS AGAINST THE WILD FLOWERS PROTECTION ORDINANCE. It is pleasing to record that the report of Mr. Meyer show a general decrease in all classes of cases dealt with. During the year, 42 persons were convicted as against 81 in 1956. A total of £79 was paid into the courts in fines, a decrease of £150 compared with 1956.

WILD FLOWERS PROTECTION ORDINANCE. This was promulgated in the *Provincial Gazette* on 13 September 1957. The recommendations as submitted by the Wild Flowers Protection Committee over the years were incorporated in the Ordinance, with one exception. This was in respect of an addition to the list of protected species. The Committee, has, therefore, approached the Department of Nature Conservation in this regard. The new Ordinance takes effect as from 1 January 1958.

PUBLICITY. The many films, lectures, etc., that are included in the Botanical Society meetings each year, together with our own Wild Flower Show, which is now an annual event at Kirstenbosch, are proving beyond doubt that we are helping considerably in fostering the interest in, and the appreciation of, our wild flowers. This interest is not by any means confined to local surroundings, or even South Africa. This is evidenced by a member of the Botanical Society living in New Zealand, Mr. B. L. Chambers, who has kindly donated a floating trophy for competition in the children's class in the 1958 Wild Flower Show. The Committee records its sincere appreciation to Mr. Chambers for this kindly gesture.

MEMBERS OF THE COMMITTEE, 1957. The following were elected:

Professor H. B. Rycroft	Mr. J. S. Linley
Mr. C. J. Sibbett	Mr. H. N. Porter
Miss K. Murray	Mr. V. Karg
Miss M. E. Johns	Mr. H. D. W. Meyer
Mr. S. Macpherson	

Professor Rycroft was re-elected Chairman at the first meeting of the Committee.

APPRECIATION. Cordial thanks are extended to the daily Press for its continued help and courtesy. Thanks are also expressed to the Cape Provincial Administration and its officials, which includes the recently formed traffic officers, for willing and helpful co-operation throughout the year.

H. B. RYCROFT
Chairman

(MRS.) W. N. HALL
Hon. Secretary/Treasurer

THE BOTANICAL SOCIETY OF SOUTH AFRICA

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CAPE TOWN
22nd January, 1958

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

INCOME and EXPENDITURE ACCOUNT for the Twelve Months ended 31 December 1957

	£	s.	d.	£	s.	d.		£	s.	d.	£	s.	d.	
General Administration Expenses ..				174	18	4	Subscriptions				3,293	6	3	
Audit Fees, 1957				15	15	0	Family Members				540	5	5	
Honorarium to Secretary-Treasurer ..				300	0	0	Ordinary Members				2,413	8	4	
Bank Charges				21	1	6	Associate Members				339	12	6	
Stationery, Printing, Duplicating, etc.				134	0	3								
Journal No. 43				388	14	10	Donations					89	9	0
Cost to date, including printing, dispatching, etc.	459	12	10				Interest on Investments					123	5	8
Less amounts received from adver- tisements				70	18	0								
Sundry equipment purchased ..				47	8	9								
Surplus for year				2,424	2	3								
				£3,506	0	11					£3,506	0	11	

PUBLICATIONS ON SALE AT KIRSTENBOSCH

The following may be obtained by application, enclosing payment, to The Hon. Secretary, Botanical Society, Kirstenbosch, Newlands, C.P., South Africa. Prices include postage.

'Plants of Land and Sea'; W. E. Isaac	6d.
'The Genus Oxalis in South Africa'; T. M. Salter. (355 pages, 10 plates, 73 text-figures.)	35s.
'The Genus Muraltia'; M. R. Levyns	35s.
'The Species of Oxalis occurring in the Cape Peninsula and how to distinguish them'; T. M. Salter	6d.
'General Hints on Raising Indigenous Plants from Seed'; H. F. Werner	6d.
'The Wilds, Johannesburg'; Miss G. Edwards	6d.
'A Tip for Horticultural Societies'; Dr. N. R. Smuts	6d.
'The Cultivation of Buchu'; H. F. Werner	6d.
'Three Hundred Years of Trees'; R. H. Compton	6d.
'South African Proteaceae and their Cultivation'; H. F. Werner	6d.
'Progress in the Study of the Silver Tree Disease'; D. Olivier	6d.
'Pelargonium—A South African Contribution to World Gardens'; F. M. Leighton	6d.
'The Propagation of Succulents from Seeds and Cuttings'; H. Hall	6d.
'Growing Proteaceae in the Summer-rainfall Area'; M. M. Vogts	6d.
'Seaweeds'; W. E. Isaac	6d.
'Some South African Biennials and near-Biennials and their cultivation'; H. F. Werner	6d.
'Saving our Flora'; H. B. Rycroft	6d.
'Some South African Herbaceous Perennials and their Cultivation'; H. F. Werner	6d.
'Plant Names and their Origin'; M. R. Levyns	6d.
'Propagation and Cultivation of Proteas and Heaths'; H. F. Werner	6d.
'Notes on some rare Stapelias from Namaqualand'; H. Hall	6d.
Annual Reports of the National Botanic Gardens, 1913-57, each year	3d.
Reprints available of articles published in the 'Journal of South African Botany', on inquiry, each	6d.
'The Journal of South African Botany'; Vols. I-XXIV, 1935-58, each volume in four quarterly parts; per volume 30s., per part 10s. 6d. (To members of the Botanical Society 25s. and 8s. 6d. respectively.) Back volumes at price of publication.	

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JOURNAL OF THE BOTANICAL SOCIETY: BACK NUMBERS

The following Parts are obtainable at the prices shown. The principal contents are mentioned below: each part also contains full-size Plates, News and Notes, Reports, etc.

Price to Members of the Botanical Society 1/6; to non-Members 2/6

Part	XXI.	Aloe Marlothii: Some Forms and Hybrids. Lawn Grasses on Trial at Kirstenbosch. How to form a Garden Library. South African Conifers for Garden Use. From New York to Kirstenbosch and Back.	G. W. Reynolds. J. W. Mathews. L. B. Creasey. J. W. Mathews. S. V. Coombs.
„	XXII.	South African Succulents at Kew. An Old Cape Frontier. Our Wild Flowers and Their Protection.	Sir Arthur Hill. E. A. Walker. F. Guthrie.
„	XXIII.	Economic Plants at Kirstenbosch. Garden Gladioli—Their Origin and History. Growing Plants from Seeds. Letters from an Early Cape Botanist.	F. W. Thorns. L. B. Creasey. S. G. Fiedler. M. C. Karsten.
„	XXVI.	The South African Genera of the Haemodoraceae. Humus and Soil Fertility. Mountains and Their Vegetation.	W. F. Barker. F. W. Thorns. R. H. Compton.
„	XXVII.	Weeds: The 'New' Cape Flora. Drug Plants.	R. S. Adamson. F. W. Thorns.
„	XXVIII.	The Herbarium of the National Botanic Gardens, Kirstenbosch. Nature Study in the Forests at Kirstenbosch.	R. H. Compton. M. E. Johns.
„	XXXI.	Cape Annuals for the Garden. A Plea for South African Trees.	F. W. Thorns. D. R. D'Ewes.
„	XL.	Seaweeds. An Australian Plant Propagator looks to South Africa for new plants for Australian Gardens. Growing Proteaceae in the Summer-rainfall Area. Some South African Biennials and near-Biennials and their Cultivation. Some impressions and reflections of a Plant Collector.	W. E. Isaac. T. A. Browne. M. M. Vogts. H. F. Werner. T. P. Stokoe.
„	XLIII.	Propagation and Cultivation of Heaths. Notes on some rare Stapelias from Namaqualand. The Cultivation of some Ericas in New Zealand.	H. F. Werner. H. Hall. W. R. Stevens.

NEW MEMBERS OF THE BOTANICAL SOCIETY 1957

(LIFE MEMBERS: FAMILY MEMBERS: Ordinary Members: Associates.)

The star (*) indicates Members who are also Subscribers to the Wild Flower Protection Section.

All Members whose names appear are not necessarily new Members; those marked † have transferred to Life Membership during the year.

In case of any inaccuracy in the following list it is requested that notification should be made to the Hon. Secretary, Botanical Society of South Africa, Kirstenbosch, Newlands, C.P.

- A.
Acheson, Dr. J. A.
Adams, Mrs. A. F. P.
Adams, Mrs. K. E.
Adendorff, N. H.
Agnew, D. W.
AHMADI HORTICULTURAL SOCIETY
Albany Horticultural Society
ALBRECHT, Mrs. A. E.
Aldred, J.
ALEXANDER, E. E.
Alleman, Mrs. E.
Alston, E. E.
*Andersen, J.
Anderson, B. K.
Andrag, Mrs. M.
Armstrong, Miss M. C.
*Ashwell, H. J.
- B.
Back, Mrs. B.
Bakker, Mrs. C.
Balne-Hart, G.
Barrow, Mrs. E. M.
†BAUMANN, MRS. F. E.
Bax, A.
Beaumont, Mrs. D.
Beckett, Mrs. S.
Behrmann, A.
Bell, Hon. Mrs. B.
Bell, Mrs. C. L.
Bennett, R.
Berguliet Primary School
Berman, Mrs. B.
Berney-Ficklin, Maj.-Gen. H.
Berry, R. T.
BILLINGHAM, COL. J. W. O.
*Bird, G.
*Bischoff, E.
Blackbeard, Mrs. E. M. C.
Blain, D. F.
Blunden, Mrs. M. E.
Bold, Mrs. S.
Borosh, Mrs. D.
Boshoff, Mrs. E.
*Boswell, Mrs. H.
BOTH, T.
Breed, H. K.
Bramley, H. R.
Bridgeman, I.
†BRINK, DR. V.
Brueckner, K. R.
Brunjes, Mrs. L.
*Brunnschweiler, B.
Bucher, G. C.
Burski, R.
Bulbring, Miss B. P.
Bulbring, Miss H. A.
- Burmester, Mrs. C.
BURROWS, MR. & MRS. F. D.
Bursook, Mrs. S.
Buys, A. J.
Cactus & Succulent Society of New Zealand (Te Awamutu Branch)
Cairns, Mrs. M.
Campbell, L.
Casson, Mrs. L. R.
Challinor, Mrs. B.
Chasemore, Mrs. A.
Chetwyn, Mrs. W. E.
*Clacey, Mrs. J. R.
Clack, Mrs. E.
Clark, Mrs. M. B.
Clogg, Mrs. P. K.
†CLOUGH, M.
Conradie, J. H.
Cook, J.
Cookson, G.
Coomber, G. A.
Cooper, Miss A.
Cooper, Mrs. G. M.
Cooper, K. W.
Cowburn, Lt.-Com. P. D.
Coosner, Mrs. S.
Cramer, L. J.
Croft, R. B. E.
Cross, T. A.
Currin, Mrs. H. C.
- D.
Dahlgren, R.
*Davids, Miss H.
Davidson, Mrs. L. E.
Davies, Mrs. E. E.
Davison, H. F.
Dawe, D. B.
Dawson, R. J.
Davis, Mrs. M.
De Beer, I. V. M.
*De Bruijn, Mrs. B.
De Klerk, A. M. C.
De Kock, Mrs. G.
De Kock, Mrs. S. M.
De Lange, Mrs. E. M.
Derman, Mrs. I.
De Villiers, Mrs. A.
De Villiers, Mrs. I. J.
DE VILLIERS, DR. M.
De Villiers, Mev. M.
Devitt, Mrs. J. G.
*De Wet, F.
†DIAMOND, MRS. V. H.
Dicey, G.
Divisional Council of Knysna
- Dobbie, I. B.
Don, Dr. P. A.
Downes, Dr. N.
Dowson, P. M.
Drewes, Mrs. E. G.
Droomer, C. C.
Duncan, Mrs. A.
†DUNCAN, MRS. R. M.
Du Plessis, D. J.
*Du Preez, Mej. M. L.
Du Toit, Mrs. A.
Du Toit, A. P.
Du Toit, C. W. M.
- E.
Earle, L. M.
Eddy, Col. R. T.
Edmonstone, G. F.
Engelbrecht, H. F.
Erkins, A. J.
*Esgate, F.
Etchison, Mrs. S.
*Evans, F.
- F.
Fabel, D. G. W.
FAIRBRASS, F. V.
Farr, Mrs. A. A.
Favero, Mrs. M.
FEATHERSTONEHAUGH, Mrs. A.
*Feetham, C. F.
Ferguson, Miss F.
Ferguson, Mrs. J. M.
Finch, Dr. S.
Finnis, Mrs. E. U.
FISH HOEK WOMEN'S ASSOCIATION
*Fitchett, Miss E. G. H.
Foster, Dr. P. A.
Frank, Mrs. M. J.
*FUNKE, Mrs. M.
- G.
Gadsby, Mrs. J. M.
Gallagher, Mrs. M. G.
*Gargan, W. M.
Garrard, Mrs. D. M.
Geddes, Mr. & Mrs. W. W.
Gell, Mrs. G. M.
George Municipality
Gibbard, Mrs. E.
Gibbons, C. F. S.
Gibbs, Mrs. B.
Gilbert, O.
GILDER, S. W.
*Gillard, W. T.
Glass, G. W.
- Godbey, R. J.
Gonsolo, A.
Goodwin, Mrs. O. E.
Goosen, P. J.
Gould, V. E.
Granger, Mrs. R.
Greene, Mrs. M.
Greville, Mrs. A. C.
Grinham, Mrs. K. M.
Gunter, J. C.
*Gwynn, Mrs. B. J.
- H.
*Haasbroek, F. J.
*Hamman, Dr. J. J.
Hansbrough, J. H.
Harraway, H. G.
†HARRIS, MRS. E.
HARRIS, COL. & MRS. S.
Hastie, R.
HAYES, R.
Heap, Mrs. S. H.
Heeck, E.
Hemmings, Mrs. N.
*HENRICHSSEN, W. C. L.
HENSILWOOD, J. N.
Herd, Mrs. G. E.
Hermanson, W. C.
Herron, Mrs. M. E.
Herzlia School
Houston, M.
Hill, R. D.
HIMMELHOCK, H.
Hitchcock, P. J.
Hughes, D. R.
Hoare, Mrs. F. W.
Hofmeyr, H. P.
Horsham, Mrs. F. A.
Horst, D.
Howard, Mrs. J.
Howieson, Mrs. R.
- I.
Immelman, Mrs. J. W.
INCE, J. W. D.
- J.
Jarman, Mrs. L.
Jeannie, Sister
Jeffery, R. G.
Jefferys, G. C. K.
Jenkins, C. D. F.
Jessop, Miss G.
Johnston, Mrs. A. J.
Jones, Mrs. R. W.
Jones, Mrs. L. C.
Jones-Bateman, Miss B.
JOOSTE, G. W.
Jordan, R. F.
- Joubert, Mrs. D. J.
Joubert, J. P.
Joubert, Mrs. J. V.
JOUBERT, DR. P. M.
- K.
Kark, L. C.
Kassier, Mrs. B.
Kennedy, J. D.
*Kenny, Mrs. R.
Kensington High School
KESLER, A.
KEYLDER, G. T.
Klaaff, M.
Klar, Mrs. A.
KLOOF HILLS GARDEN CLUB
Klosser, Mrs. D.
Knight, Mrs. G. B.
Knight, Q.
KOCK, MRS. E. M.
Kok, J. A.
Krohn, Mrs. W. E.
Krumbock, Mrs. F.
- L.
Lakie, B.
Lang, F. M.
*Langebaan Women's Agricultural Association
Largier, Mrs. L.
Lawrence, Mrs. J.
Lee, A. G.
Lee-Warden, Mrs. E.
Lello, D. M.
Lemockkloof Nurseries
Levon, Dr. H.
†LEVYNS, MRS. M. R.
Lewin, Mrs. D. E.
Linfoot, Miss M.
Lord, E. E.
Louw, Dr. E. R.
Low, Mrs. V.
LUTTRELL, Mrs. G. F.
- M.
*Machell, Mrs. W.
McDonald, Mrs. R.
*McKIRDY, H. C.
McLean, Miss M.
*Maier, G. K.
Malaher, D. B.
Mallows, Mrs. A.
Mark, Mrs. E.
Marples, P.
Marais, Miss A. W.
Marr, J. D.
MASON, H.
Mason, F. S.

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- Missak, J. M.
 Mitchell, C. S.
 Mitchell, T. A.
 Monat, Mrs. C.
 Mönning, H. O.
 Morley, J.
 Moss, V. B.
 Muizenberg High School
 Murphy, Mrs. M. L.
- N.
 Naude, Mrs. J. F.
 NEETHLING, DR. C. P. M.
- O.
 O'Brien, M. J.
 *O'Connor, K. W.
 Oglenthorpe, Mrs. H. C.
 Orr, J. W.
 Orr, Mrs. L.
- P.
 Parker, C.
 PARKES, Mrs. A. C. M.
 Parkinson, S.
 *Payne, Mrs. M.
 PEARLSON, Mrs. A.
 Pemberton, Dr. E.
 Pesse, J. A.
 Peterson, B.
 Pienaar, W. J.
 Pieraerts, Dr. G.
 Pinelands Horticultural
 Society
 Pinelands Primary School
 Pizer, Mrs. J. B.
 Plateau (Nigeria) Horti-
 cultural Society
 Porterville High School
- Preston, Mrs. H. H.
 Prevost, A. W. W.
 Pritchard, C. A.
 Proctor, W. A.
 PUBLICITY ASSOCIATION OF
 KNYSNA, PLETTENBERG
 BAY AND DISTRICT
- R.
 Rappe, Baron C. J.
 *Ratcliff, Mrs. I. M.
 Reid, J. K.
 Reitz, K. A.
 Renecke, H. R.
 Renny, Mrs. J.
 RETIEF, D. B.
 Rex, D.
 RICHFIELD, L.
 Richmond, Mrs. M.
 *RILEY, Mrs. D.
 RITSON, COL. & LADY G.
 Rix, D. D.
 Rix, P.
 Rowe, Mrs. C.
 Robertson, Mrs. C. M.
 *ROBERTSON, MR. & MRS.
 C. M. K.
 *Robertson, E.
 *Robertson, Mrs. K. A.
 ROBERTSON, Mrs. M. K.
 Robinson, Mrs. N. H.
 Rodger, G.
 Rodger, Miss M.
 Rokiyo, T.
 RORICH, E.
 ROSENBERG, Mrs. C.
 Rosenbrock, H.
 Rossouw, F. W.
 ROTHERWICK, LORD
- ROURKE, J.
 ROVER, W. K.
 †ROWE, MISS O. H.
 Roy, B.
 Rustenburg Tuinbou-
 vereniging
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THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

THE BOTANICAL SOCIETY OF SOUTH AFRICA

OBJECTS:

1. The promotion of the interests of the National Botanic Gardens of South Africa established under the Trustees of the National Botanic Gardens of South Africa.
2. The preservation of the native flora of South Africa. The Society therefore endeavours:
 - (a) To encourage the people of South Africa and other countries in the progress and development of the National Botanic Gardens of South Africa at Kirstenbosch, and any other Garden that may be established by the Trustees of the said National Botanic Gardens of South Africa.
 - (b) To augment the Government and other grants towards developing, improving and maintaining the National Botanic Gardens of South Africa at Kirstenbosch and any Garden referred to in the preceding subsection.
 - (c) To organize shows at which may be displayed the results of botanical experiments of cultural skill in improving the different varieties of South African flora.
 - (d) To enlighten and instruct on botanical subjects by means of meetings, lectures and conferences and by the distribution of literature.
 - (e) To promote the preservation of the native flora of South Africa, to encourage public interest in it, and to co-operate with the Public Authorities and others in the attainment of this object.

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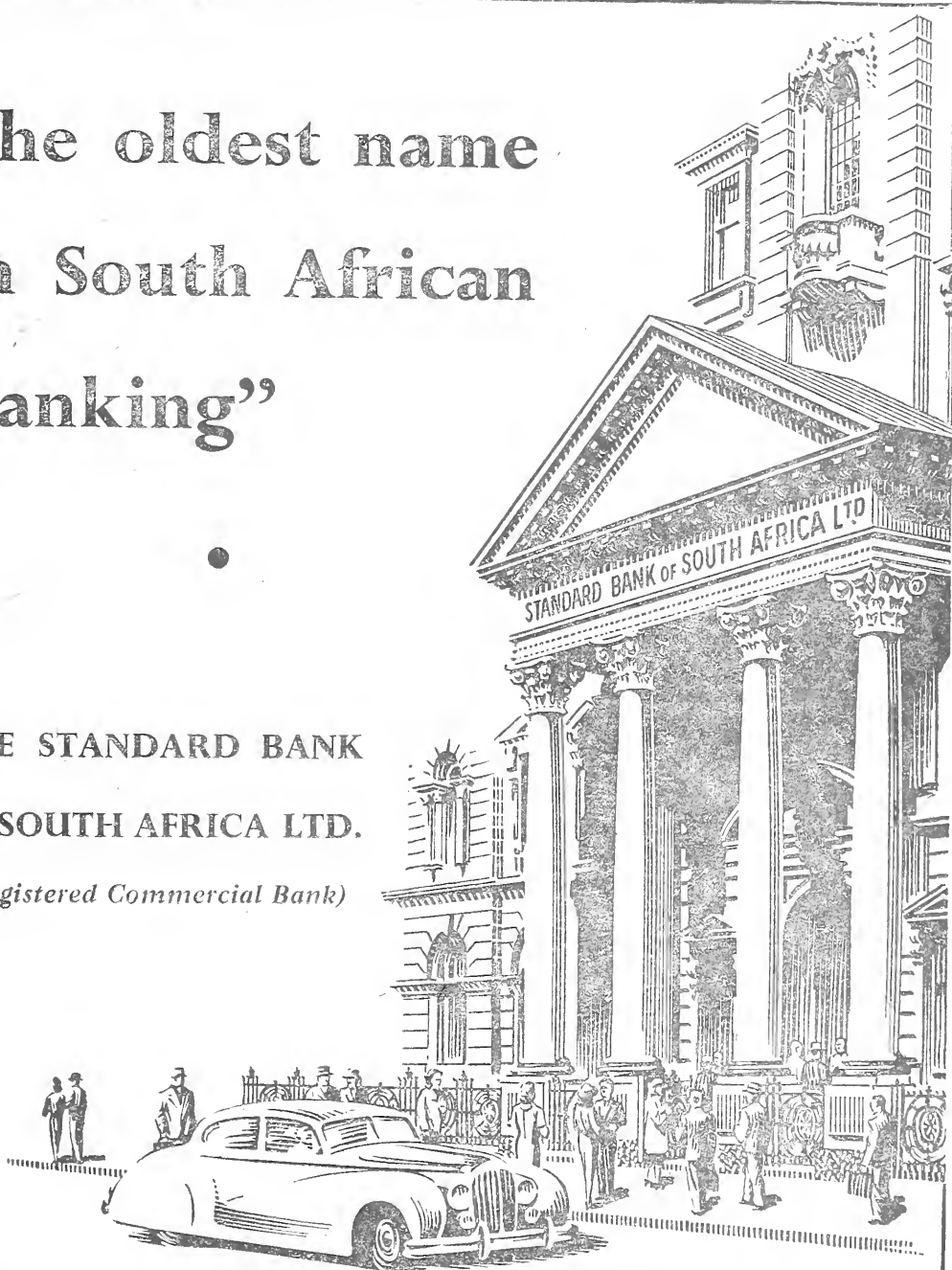
All members have the privilege of sharing in the free distribution of surplus seeds from Kirstenbosch and Worcester, on application to the Director of the Gardens. The Journal of the Botanical Society, published annually, is sent free to every Member. The Journal of South African Botany can be purchased by Members at reduced rates.

Members who wish to support the Wild Flower Protection Section of the Society may give an annual subscription of 5s. per annum in addition to the subscription for the class to which they belong. Those wishing to become Members of the Society are invited to communicate with the Hon. Secretary, Mrs. W. N. HALL, Botanical Society of South Africa, Kirstenbosch, Newlands, C.P.

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OTANICAL SOCIETY OF SOUTH AFRICA

Edited by H. B. RYCROFT, M.Sc.,
B.Sc.(For.), PH.D., Director of the National
Botanic Gardens, Harold Pearson Professor of
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Part XLV

1959



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[Photo: H. B. Rucraft.]

PLATE I

Mr. T. P. Stokoe climbing at the age of 90 years. (See page 6.)

The Journal of the Botanical Society of South Africa

EDITED BY H. B. RYCROFT

PART XLV

1959

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- PLATE 1. Frontispiece. Mr. T. P. Stokoe. (Photo: H. B. Rycroft)
 PLATE 2. Cape Bulbs. (Photos: E. Eliovson)
 PLATE 3. *Stapelia Barklyi*. (Photo: C. Lewis Ralph, Kenilworth)

News and Notes

WILD FLOWER SHOW

An important date to remember! Saturday, 3 October. This is the date of our Wild Flower Show which is to be held in the Lecture Hall, Kirstenbosch, as usual.

We are happy to announce that the official opening will be performed by His Worship the Mayor of Cape Town, Councillor Mrs. J. Newton Thompson, at 12 noon.

The Show will be preceded by the Annual Gathering of Members of the Society on the Lawn at 10.45 a.m.

This is your show. Please, therefore, make an effort to enter at least one exhibit per member, and so ensure a successful show.

A copy of the schedule is enclosed with this Journal.

* * *

NEW BOOK FROM KIRSTENBOSCH

Dr. G. Joyce Lewis, who is the acknowledged authority on the Irids of South Africa, is a member of the Council of the Botanical Society and is the Botanical Research Officer in the Compton Herbarium, Kirstenbosch.

She has produced many research papers on her special subject and has now written a book on the genus *Babiana*. Species of this genus are often grown in home gardens, and this book will be of considerable value in identifying them.

The Genus Babiana will be issued as Supplementary Volume 3 of the *Journal of South African Botany*, and the price is likely to be in the vicinity of £2.

* * *

VISIT OF LADY ELPHINSTONE

Kirstenbosch was honoured to receive a visit in February from Lady Elphinstone, eldest sister of the Queen Mother. It was her first visit to South Africa, and its principal purpose was to see Kirstenbosch and the wild flowers of the country.

She was charmed by the Gardens and, being an expert horticulturist herself, was most interested in every aspect of the work here. Seeds and plants from Kirstenbosch accompanied her back to Scotland and we hope they are flourishing in their new home.

* * *

PROTEA NEWS

In our last Journal advance notice of a book on *Proteas* was given. The book has now been published under the

title *Proteas: Know Them and Grow Them*, and was written by one of our members, Mrs. Marie M. Vogts of Pretoria. Most of the questions that one is likely to ask about the growing of any plants of the *Protea* family, *Leucospermum* (pin-cushions) and *Leucadendron*, are answered in this publication. In addition there is very interesting information on the early history of the collection and cultivation of *Proteas*. Did you know, for example, that the silver tree, *Leucadendron argenteum*, was cultivated in England as far back as 1693?

The price of the book is 45s. and is obtainable from your bookseller or from the Afrikaanse Pers-Boekhandel.

* * *

MORE PROTEA NEWS

For a very long time the *Protea* has been regarded as the floral emblem of South Africa. Professor Rycroft has chosen this genus as his special field of study and is hoping to produce a book on the subject. Miss Fay Anderson has already provided some beautiful illustrations for the book. At the same time Dr. John Beard is dealing with the *Proteas* of the summer-rainfall area of South Africa and of tropical Africa and his specimens are being painted by Miss Lura Riply.

It is anticipated that Professor Rycroft and Dr. Beard will jointly produce a book on all the *Proteas*.

* * *

JOURNAL OF SOUTH AFRICAN BOTANY

Apart from the *Journal of the Botanical Society of South Africa* which is published annually there is a *Journal* of a more serious nature which publishes articles of botanical interest. It is the *Journal of South African Botany* which appears four times each year. The subscription to the *Journal* is thirty shillings per annum, but members of the Botanical Society are privileged to receive it at the reduced price of twenty-five shillings.

During 1959 several very interesting articles have appeared. For example, Miss Mia C. Karsten has written an account of Francis Masson's journeys at the Cape in the late eighteenth century.

Dr. G. W. Reynolds, the author of *Aloes of South Africa*, has given descriptions of several new species of *Aloe* which are found in tropical Africa. For those who are interested in the Irids there is a paper by Dr. Joyce Lewis on *Hexaglottis*. Dr. Beard has written an interesting account of his ideas of the origin of African *Proteaceae* and Dr. Bolus, continuing with her work on

succulent plants has described several new species of *Mesembryanthemum* and allied genera.

For those who are interested in the algae there are articles by Mr. A. R. A. Noel on the Freshwater Swamps of Inhaca Island and by Professor P. C. Silva on the Genus *Codium*.

Professor Rycroft described a new species of *Leucospermum* found within 200 miles of Cape Town and in another paper told us that what we have known as *Protea marginata* is actually *Protea laurifolia* and that *Protea grandiflora*, commonly known as the Waboom, must be called *Protea arborea*—a most appropriate name.

Those who would like to subscribe to the *Journal of South African Botany* are requested to write to the Director, National Botanic Gardens of South Africa, Kirstenbosch, Newlands, Cape Province.

* * *

ANOTHER NEW BOOK

Marloth was the first botanist to give the territory carrying the greatest number of Cape flowers a distinctive and popular name. Fifty years ago he called it the Cape Floral Kingdom.

Conrad Lighton has chosen this name as the title for his forthcoming book on the flora found in the coastal belt from Port Nolloth to Port Elizabeth. Lighton has collected and collated a great deal of information over a number of years and tells the story of the flowers, botanists, reserves and wild flower shows which have made the Cape famous. As no attempt has hitherto been made to write a popular history of our floral heritage, *The Cape Floral Kingdom* promises to fill a gap.

* * *

RED DISAS

Numerous requests are received at Kirstenbosch every year, especially from the United States of America, for plants or seeds of the Red Disa, *Disa uniflora*. We have seldom been able to oblige because until recently our entire stock consisted of less than half a dozen plants. It is true that at one time these beautiful ground orchids were to be seen on the lawn, but, we regret to say, they were gradually removed by members of the public.

They are not easy to grow, but we believe that we have discovered some of their secrets and our hope is that within a few years visitors may be able to see hundreds of plants in bloom at the same time.

It is even possible that the name *Disa uniflora* will appear on our seed-list and that members of the Society will have the opportunity of growing these plants themselves.

MR. C. J. SIBBETT

Thrift has always included the safeguarding of the Cape flora in the opinion of Mr. Cecil J. Sibbett, for many years chairman of the Botanical Society. Many tributes were paid to him when he announced his retirement in September from the chairmanship of the National Thrift Organization of South Africa which he founded forty years ago. He held this position since 1919, a record believed to be without parallel in any other country. In that time £125,000,000 was invested in Union Loan Certificates.

* * *

MUSHROOM SOUP

Perhaps the oddest request for a plant specimen ever received by Kirstenbosch was one this year from the Mushroom Growers' Association in England, for a specimen of a fungus, *Boletus edulis*, for use in a court case. *Boletus edulis* is the renowned 'Cèpe' of French cookery (anglicized as 'Cep'). The case was brought by the West Sussex County Council, under the Weights and Measures Act and at the instance of the Mushroom Growers' Association, against a firm which marketed packets of soup powder labelled 'mushroom soup' but made, so alleged the Mushroom Growers, not from mushrooms but from the Cep. It was in the nature of a test case involving four well-known soup-making firms, of which one was selected for the trial. The soup-makers did not dispute the facts but contended that the Cep is a kind of mushroom, and fraud therefore was neither intended nor committed.

The prosecution therefore had to convince the court that the Cep and the mushroom (in this case the cultivated mushroom) were so unlike that the Cep could not properly be described as a mushroom, either botanically or commercially; and to label Cep soup as mushroom soup was thus a fraud on the public and an offence against the law. To do this, they wished to produce a live specimen of Cep in court; and here is where Kirstenbosch came into the picture. The Cep is one of the mycorrhizal fungi, which grow only in association with the roots of certain trees, and therefore cannot be cultivated by mushroom growers. It probably came to the Cape with the oak and pine in the early days of the colony, when the Dutch East India Company imported young trees in boxes. It is now often found in April and May under these trees, provided you get up earlier than the regular collectors, for it is becoming too popular. Now, the case was down to be heard in early May, long before the Cep appears in England, but just

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right for it at the Cape. Would the National Botanic Gardens please send the needed evidence by air mail?

This evidence was kindly provided by Mr. D. A. Davis of Claremont, and dispatched in good time for the trial. No more was heard from the Mushroom Growers' Association, but further news has come from Mr. Frank Chapman, who collects fungi and information about them. Glancing through that entertaining and useful quarterly *The South African Gourmet* for autumn 1959 in search of mushroom recipes, he saw 'Court Ruling on Mushrooms' listed among the contents, and turning to page 18 found it headlined 'COURT WAS ASKED TO DECIDE WHAT IS A MUSHROOM'. This was an account of the trial, which ended in the court deciding that 'A fungus called *Boletus edulis* is properly described as a mushroom'. The evidence proved most interesting, leading mycologists having been briefed by both sides and Mr. Symington, of the well-known food firm, by the defence. Mr. Symington said his firm had marketed powdered mushroom soup for many years, and always used *Boletus edulis*. They had experimented in making the soup powder with dried, cultivated mushrooms, but had found that these, when dried, lost so much flavour that the soup was not up to their firm's standard.

There is an editorial footnote to this article, to the effect that 'South African canners use their own cultured mushrooms in their tinned soups'. The soup on trial, however, was not canned, but a packet of powdered 'mushroom soup', and all the packets we have tried so far seem to have had *Boletus edulis* as their basic 'mushroom', though scraps of dried button mushroom may be added for verisimilitude. Two firms, in Switzerland and in Israel, have played for safety by placing pictures of *Boletus edulis* above the words 'mushroom soup'.

Botanically, the mushroom is very different from *Boletus*. Its spores are borne on 'gills' which hang down from the cap, whereas in *Boletus* they are formed in long tubes which hang straight down and are so crowded together that their openings look like tiny holes in a sponge. But to most people, any sizeable fungus is a 'mushroom' if it is good to eat, a 'toadstool' if poisonous, and of no interest if neither. This popular classification, however it may shock the botanist's soul, has always to be taken into account when dealing with the general public and the larger fungi. An authoritative though rather breath-taking lead as to what may be regarded as permissible in this direction has been given by Professor Christensen in his excellent *Common Edible Mushrooms*. He has gone a long way to meet the popular idea by taking 'mushrooms' to cover all the larger fungi, and

dividing them into mushrooms with gills and mushrooms without gills, the latter covering boleti, puffballs, morels, and any other sizeable fungi. This concession to popular nomenclature goes even further than the court decision that 'a fungus called *Boletus edulis* is properly described as a mushroom'.

* * *

RETIREMENT OF MR. J. THUDICHUM

It was a sad day when, at the end of 1958, Mr. and Mrs. J. Thudichum packed up their belongings and left the Karoo Garden at Worcester. They had been there for thirteen years, and during that time Mr. Thudichum, often with no more than two or three unskilled labourers, transformed a piece of dry landscape into a Garden of great beauty.

We are glad to know that Mr. Thudichum is still working with plants (he is responsible for tree-planting along the National Roads of the Cape Province) and we wish him and Mrs. Thudichum every success in the future.

* * *

NEW CURATOR AT KAROO GARDEN

Good fortune smiled on the Karoo Garden when Mr. F. J. Stayner applied to become its new Curator. Mr. Stayner, who was in charge of Victoria Park in Port Elizabeth, has had a lifelong love for succulents and now he has the opportunity of devoting his undivided attention to them.

I am confident that he will make a grand success of his work and that under his care the fame of the Karoo Garden at Worcester will spread wider and wider.

* * *

RETIREMENT OF MISS MURIEL JOHNS

It has been stressed on many occasions that the principal objects of the National Botanic Gardens of South Africa are scientific and educational. There is perhaps one person, more than anyone else, who has been responsible for developing the second of these objects. I refer to Miss M. E. Johns. She was appointed by the Cape School Board to take charge of Nature Study Classes at Kirstenbosch as far back as 1933 and she will retire at the end of this year.

Thousands of schoolchildren who have attended her classes have learnt to love and appreciate the natural vegetation of South Africa. Muriel Johns has a 'way about her'. She understands the mentality and interest of young children and I know of many mothers and fathers of children who attend the nature study classes

who still talk of their joys of being shown the beauties of Kirstenbosch by Miss Johns.

We feel that Miss Johns 'belongs' to Kirstenbosch and are sure that although she will be retiring at the end of 1959 she will still be happy to conduct parties of schoolchildren round the Gardens when asked to do so.

* * *

Kew Bicentenary

On 2 June 1959 a Garden Party was held at the Royal Botanic Gardens, Kew, to celebrate the Bicentenary of the Gardens. Her Majesty the Queen and H.R.H. Prince Philip, Duke of Edinburgh, were present. The Director of the National Botanic Gardens of South Africa received an official invitation to attend. He was unable to do so and sent a cable of congratulations and good wishes instead!

* * *

CONTROL OF ALIEN VEGETATION

The greatest threat to our natural vegetation is undoubtedly the spread of alien vegetation. Realizing this danger, the Wild Flowers Protection Committee of the Botanical Society formed a new Committee, the C.A.V. (Control of Alien Vegetation Committee), to deal specifically with this problem. Since the formation it has been very active, and we believe that the public is now much more aware of the fact that the vegetation covering our beautiful countryside is by no means all indigenous.

If we can have a strong public opinion on our side the authorities are more likely to take note and, we hope, action.

* * *

OBITUARY

THOMAS PEARSON STOKOE. It is with deep regret that we record the death of Mr. T. P. Stokoe on 21 April 1959. 'T.P.', as he was affectionately called by those who knew him well, was an Honorary Life Member of our Society and also of the Mountain Club of South Africa. He was an ardent collector of plants and contributed thousands of specimens to the South African Museum Herbarium and Compton Herbarium, Kirstenbosch.

Most of his collecting was done high up in the mountains, and many of his discoveries were new to science. Several were named after him, such as *Protea stokoei*, *Erica stokoei*, *Watsonia stokoei*, *Brunia stokoei*, etc.

Until the age of 91 his keenest delight was to climb the mountains in search of his plants. He accompanied

several Kirstenbosch collecting-trips and was always known to head straight for the highest peaks.

Special trips were arranged for 'birthday treats' when he celebrated his ninetieth and ninety-first years. The photograph shown in the frontispiece was taken soon after his ninetieth birthday. For his ninety-first birthday Professor Rycroft arranged a special treat for 'T.P.' to camp with him and hunt in the Hottentots-Holland Mountains for *Mimetes stokoei*, a species which as far as we know has been completely exterminated. During this trip the grand old man took ill and never recovered. 'T.P.'s' ashes were scattered on 16 August 1959 among the plants he loved, near the site of his last camp.

ELSIE GARRETT RICE. Mrs. Garrett Rice, who was very closely associated with the Botanical Society of South Africa, died on 27 April 1959. She will always be known as the artist of the Society's publication *Wild Flowers of the Cape of Good Hope*, written by Professor R. H. Compton. She was the younger sister of Mr. Edmund Garrett, a member of the old Cape Parliament.

Shortly before her death Mrs. Rice was working on a proposed design for a stamp to mark the Golden Jubilee of Kirstenbosch and the Society in 1963.

ARTHUR CHEVERTON BULLER. A sad loss to the horticultural world was caused by the death of Mr. A. C. Buller in Stellenbosch on 7 May 1959. He bred many new varieties of Amaryllis lilies and his collection was internationally known. Mr. Buller was one of the earliest commercial growers of Proteas in South Africa, and thousands of plants are growing on his farm near Stellenbosch.

* * *

CAPE PRESS CUTTINGS

'CAPE ARGUS', 13 NOVEMBER 1958

Seventy-five per cent of the natural vegetation in the South Western Cape was doomed through the spread of alien vegetation, Prof. H. B. Rycroft (Director of the National Botanic Gardens, Kirstenbosch) said today.

He was lecturing at an Institute of Citizenship lunch.

The spread of alien vegetation, he said, was a national problem and should be tackled from the highest level.

The destruction of the Cape's magnificent flora had been greatly accelerated in recent years through the extension of housing and industry and agriculture.

Fire, far from destroying aliens, was one of the chief agents for the spread of hakea and wattle.

The seeds of both not only resisted fire but were encouraged to germinate by fire.

'DIE BURGER', 14 NOVEMBER 1958

Vyf-en-sewentig persent van die inheemse plantegroei van die Boland is gedoem. In die afgelope vyf jaar het uitheemse plante vinniger versprei as in die vorige kwarteeu. Dit is 'n landwyse probleem, het prof. dr. H. B. Rycroft, direkteur van Kirstenbosch, gister gesê.

Hy het op 'n vergadering van die Instituut vir Burger-skap oor die gevaar van uitheemse plantegroei gepraat.

„Suid-Afrika het meer as sy deel aan uitheemse plante,” het prof. Rycroft gesê. „Baie van hulle het die land per ongeluk binnegekom, maar heelwat is jare gelede ingevoer om dryfsand te bestry en ons hout aan te vul.”

Spr. het gesê dat Suid-Afrika moontlik die pragtigste versameling inheemse plantegroei in die wêreld gehad het. Die Kaapse Vlakte was vroeër 'n paradys van suikerbos. Vandag is daar niks nie. Vyftig jaar gelede het honderd disaplante 1s. 3d. gekos. Vandag word hulle maar selde gesien.

Die toekoms van die Suid-Afrikaanse plantegroei lyk duister. Dit is 'n landwyse probleem wat deur die Regering en die gewone burger aangepak moet word.

Prof. Rycroft het voorgestel dat eers gesorg moet word dat die natuurreservate skoon bly. Selfs 'n plek soos Kirstenbosch word bedreig. Hy het op skole en jeug-organisasies 'n beroep gedoen om te help werk in die geselskappe wat die uitheemse plante uitroei, maar die reaksie was tot dusver maar swak.

'CAPE ARGUS', 17 NOVEMBER 1958

Gloomy as was the prospect opened by Prof. H. B. Rycroft's statement at an Institute of Citizenship meeting on Thursday that three-quarters of the natural vegetation of the South Western Cape was doomed to extinction by alien plants, it seems only too likely to be true. Many of the most beautiful flowers of the Peninsula have become rarities within living memory and indigenous trees and shrubs are giving way before the ruthless advance of hakea and pine.

Alien vegetation is not necessarily an evil. The vine and the oak, for instance, are both immigrants to South Africa, yet without them the Cape would not be the Cape we know. It is only where a newcomer gets out of hand and disturbs the balance of nature that it becomes a pest.

This, sad to say, is just what is happening in the Peninsula, despite many efforts to stop it. To make matters worse, some of these alien plants thrive on the frequent fires that do so much damage to the natural vegetation, so that the many people who are doing their utmost to keep them in check find they are fighting a losing battle, or at best a delaying action.

Yet the people in general earnestly desire to preserve the flora, and with it the distinctive character, of their country. Professor Rycroft said that this was a national problem and should be dealt with at the highest level. Meanwhile he should not want for volunteers to help in the eradication of undesirable aliens from the mountain-side.

'CAPE ARGUS', 21 FEBRUARY 1959

South African wild flowers may bloom in the garden of Mr. and Mrs. David Rockefeller's home outside New York and on a tiny island in the West Indies where they are building a house.

Mrs. Rockefeller—wife of the internationally famous millionaire—who is a trustee of the New York Botanical Gardens and a keen gardener, was taken round Kirstenbosch by the Director (Prof. H. B. Rycroft) while she was visiting Cape Town with her husband.

'It is one of the most beautiful botanic gardens I have seen anywhere', Mrs. Rockefeller said. 'Wherever we have been in Africa we have been told that Kirstenbosch is the star garden and now I can see why. If it had a research laboratory it would be the most outstanding botanical garden in the world. I am anxious to try some of your lovely South African wild flowers in our garden at Tarrytown, outside New York, and on the island of San Bartolome in the West Indies. It is dry and warm on the island so some of the varieties should do well.

'As the regulations about importing plants into the United States are strict I shall have to import seeds.'

Mrs. Rockefeller said she hoped to join the Botanical Society of South Africa.

Professor Rycroft showed her a red disa (which is blooming in a safe place in the upper lily pond), and she thought it the most beautiful thing she had seen.

'I was fascinated, too, by the curious little stone-like succulent plants, and at first could not distinguish them from the pebbles among which they grow', she said.

'It must be wonderful here in the spring. It would be nice if we could come again then and bring the children.' (They have six.)

'CAPE ARGUS', 4 MARCH 1959

Mrs. David Rockefeller has become the first patron of the Botanical Society of South Africa under a new scheme of membership inaugurated last year.

The title of patron is given to anyone who subscribes £100 to the Society. Patrons are sent 35 packets of seeds annually from Kirstenbosch.

Mrs. Rockefeller, who was taken round Kirstenbosch by the Director, Prof. H. B. Rycroft, during her recent

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visit to Cape Town with her husband, expressed great admiration for the Gardens.

Professor Rycroft said Mrs. Rockefeller intended to go to the International Flower Show in New York next week and would make a point of seeing the exhibit sent by Kirstenbosch.

Last year Kirstenbosch was awarded the first prize and a gold medal in the international class. Kirstenbosch and 'The Wilds', Johannesburg, which won a bronze medal, jointly won a silver trophy for South Africa.

'CAPE ARGUS', 12 MARCH 1959

An almond tree from a 300-year-old hedge planted on Table Mountain by Jan van Riebeeck will be flown to England on Saturday in exchange for a cutting of the tree from which an apple is said to have fallen on to Sir Isaac Newton's head.

The almond tree given by the director of Kirstenbosch (Prof. H. B. Rycroft) will be planted in the grounds of

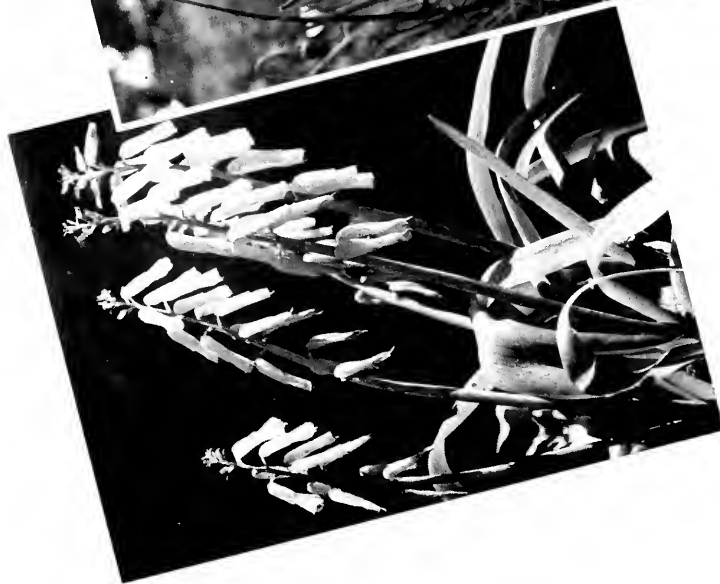
the National Physical Laboratory in Teddington, England.

After the next pruning of Sir Isaac's apple tree in Cambridge, a cutting will be flown to the Union. It will be planted at the entrance to the South African National Physical Research Laboratory at Scientia near Pretoria.

The idea of this exchange came to Dr. E. C. Halliday, chief of fundamental standards at the Union's National Physical Research Laboratory, when he was shown a 'descendant' of Sir Isaac's tree in the British laboratory grounds in Teddington in 1957.

Professor Rycroft said that the hedge was planted on Table Mountain to keep out marauding Hottentots. It was a national monument.

Next year he was planning to have it restored to its original length. He had prepared cuttings from the almond trees and would ask property-owners to re-establish the hedge so that it would be a replica of the seventeenth-century barrier.



Lachenalia tricolor var. *aurea*. The Golden Lachenalia makes an exceptionally bright subject for window-boxes or pots for indoor decoration.



Moraea tripetala has dainty flowers which remain open for four days and nights before withering.



Ornithogalum thyrsoides, the well-known Chinkerinchee, blooms readily in Highveld gardens.

(Photos: E. Eltonson.)

Growing Cape Bulbs in the Summer-Rainfall Area

By SIMA ELIOVSON

'CAPE bulbs' mean a great deal to the lover of South African wild flowers. The term immediately conjures up visions of *Ixias* swaying gently on their grass-like stems; full-lipped Painted Ladies; nodding Caledon Bluebells; starry, brilliant *Sparaxis* and scented *Freesias*. In truth, none of these plants are bulbs, for all grow from corms. In the loose terminology of gardeners, however, they are all regarded as bulbs, for anything that has the ability to develop a solid, dormant mass which can be stored and then planted out at the correct time, is thought of as a bulb. The Cape bulbs discussed here, therefore, will consist of plants which may have true bulbs, corms or tubers.

The term 'Cape', too, has a restricted meaning. It is limited by its climatic requirements and not by its geographical boundaries, for the Cape Province comprises almost half of South Africa and has several types of climate within its borders. The Cape bulbs which most people visualize belong only to the winter-rainfall area of the south-western Cape, which has its growing-season during winter and its dormant season during summer.

The winter growing-period creates the chief problem in growing Cape bulbs in the summer-rainfall area of southern Africa. It is hard to believe that some plants will rot away and die during warm, rainy summers if they receive too much moisture while they are having their normal resting period. The second problem is to remember to water them during the dry winter months. Other difficulties await the gardener who lives in areas where harsh frost sears plants occasionally during winter. Some of the Cape bulbs, like Chinkerinchee (*Ornithogalum thyrsoides*) will withstand the coldest winter's night, while others like *Freesia* or *Ferraria* must be given sheltered positions if they are to bloom in the spring. All these difficulties can be overcome, however, and one should not be discouraged from attempting to grow these floral treasures, for they are among the loveliest in the spring-time festival.

The major problem of rotting during rainy summers can be overcome in three ways, by lifting the bulbs, by growing them in pots or by planting them in very well-

drained soil. The simplest method is to lift the bulbs as soon as the foliage has turned yellow, which is generally about four to six weeks after flowering in the spring. This is easy if one has only a few bulbs, but can become a tremendous task if one is a collector, and grows large quantities of bulbs as well as many different species. The small bulbs can be stored loose in clean empty jam-tins, without any soil or moss around them, but should be labelled clearly as it is very easy to forget what they are when the time comes to plant them out again in March. Keep the tins on a shelf or on the floor of the garage, away from sunshine. Stack them so that air can circulate about them.

An easier way to store them, if one has only a few of each kind, is to grow them in pots out of doors and whisk the pots into a garage or shed as soon as the foliage dies down. This is the best way to grow *Lachenalias*, which have soft bulbs that rot very easily. A few days of summer rain after the bulbs have died down will be enough to destroy a whole collection, so that one must be vigilant and remove them to a dry place immediately on becoming dormant. This is especially important in places where the first heavy summer rains fall just at the time when most of the Cape bulbs have died down, towards the end of October on the Highveld.

The advantage of growing special plants in pots is that they can be brought into the house during the few weeks that they are in bloom. *Lachenalia pendula* is valuable because it flowers during mid-winter, while others, like *L. mutabilis* and *L. tricolor* var. *aurea*, flower a few weeks later. Very rare bulbs like *Gladiolus blandus*, the Painted Lady, can be enjoyed in the living-room at night without having to pick a single precious flower that might set seed, so that it helps to multiply one's rarities by growing them in pots.

Choose large, deep terra-cotta pots for planting bulbs, as the smaller, shallower pots dry out too rapidly. *Babianas* need to be grown in deep pots as their corms should be planted at least 6 inches below the surface. The size of the pot depends on the size of the bulb. One can crowd as many as forty-five *Romuleas* into an 8-inch pot, while it would hold only six to twelve of the larger

Gladioli like *G. tristis* and *G. carmineus*, and about two dozen of *G. venustus*. Seed, of course, can be sown quite closely and the seedlings left in the pot for two or three seasons when they will come to maturity.

Keep the pots under a tree in the garden from March onwards and near a tap so that they can be watered each day without much effort. Aim to keep the soil damp all the time. Stand the pots on bricks or on slate so that the excess water can drain away. The bulbs need a certain amount of sunshine each day, but light shade under a tree will prevent drying-out. The bulbs can be repotted at one's leisure during summer—a good task for rainy days—or they can be left in the pots for two seasons and topped with a good layer of well-rotted compost.

Some bulbs can be left in the open ground during the dormant period, provided that the soil is well-drained and gravelly or sandy in texture. They will survive best if they are planted in a raised bed in a rockery or on a terrace where heavy summer rains will not settle. Sparaxis, Freesias, Tritonias and Babianas may be left in the ground with comparative safety, but some of these may be lost over a period of several years. Some bulbs like Cyanella and Lachenalia will invariably rot if they are not allowed to dry off.

A few Cape bulbs are peculiar in that their flowers pop out of the bare ground in autumn and the leaves follow later, remaining green during winter and dying down again in summer. Gardeners in the summer-rainfall area generally find such behaviour puzzling, for they frequently miss the flowering period and rot the bulb during summer in a vain effort to produce flowers. Such bulbs are the Belladonna Lily (*Amaryllis belladonna*), April Fool (*Haemanthus coccineus*), the Red Nerine (*Nerine sarniensis*), the rare Malagas Lily (*Cybistetes longifolia*), the seldom-grown Candelabra Flower (*Brunsvigia orientalis*), Sceroogblom (*Boophone guttata* and *Cyrtanthus ventricosus*).

One must make certain that these bulbs are in the ground at least a month before they are due to flower. It is best to plant them at the end of January so that they will not send out their flowers while in storage and so spoil their blooms. One must remember to water them during winter while the foliage is green. These bulbs can be left in the ground if they are planted on a raised area such as on a slope or in a rockery, so that excess summer rains can drain off without rotting the dormant bulbs. Clay soils should be mixed with plenty of sand. Red Nelines take kindly to growing in pots and can be repotted every second year. They enjoy crowded con-

ditions, and should be planted six to a pot as every bulb does not flower each year. Always place a layer of well-rotted compost on top of the soil annually.

All bulbs require fertile, light soil mixed with plenty of compost, and Cape bulbs are no exception. Some species, like *Gladiolus alatus*, grow in clay soil in nature, but will grow in ordinary well-prepared soil in pots or in the garden, if one is lucky enough to obtain them!

Certain Cape bulbs like Romulea, Dipidax and Wachendorfia grow in the moist soil of vleis in nature and require plenty of moisture while growing. Wachendorfia, which is more or less evergreen, can be planted beside a dripping tap. The others must be watered freely or can be planted in pots which may be sunk to the rim in a shallow, sunny pond. Dipidax corms will go down to 2 ft. in nature and should be given deep soil, while Romulea can be planted from one to three inches in depth. If one has a pond one can plant the hardy Cape Pond Weed (*Aponogeton distachyus*), the dainty, canary-coloured *Limnanthemum thunbergianum* or the Blue Water-lily (*Nymphaea capensis*), which will make themselves at home in the water. These aquatics are found growing wild in other parts of the country besides the south-western Cape.

A few bulbs come from very dry places. These need extremely well-drained soil and should never be over-watered, although they do not mind moisture while growing in winter. These are *Massonia latifolia*, often called the ugly duckling of the Lily family, which is of interest mainly to collectors, and the very rarely grown *Veltheimia roodeae*. *Veltheimia viridifolia*, a better-known species, does not really belong to the Cape bulb selection, for it comes from the eastern Cape which has rain at periods throughout the year. It has a very short dormant period during mid-summer and behaves almost like an evergreen in the summer-rainfall area, where it may be grown in the shade of large trees.

When planting Cape bulbs in the open ground in March, try to find a position that will be partially shaded, particularly in the morning, until about 10 o'clock. This will protect the plants from the morning sun which browns the frost off the leaves and frequently damages them so severely that they will not flower. Plants like Freesias, *Watsonia marginata*, Ferraria, Chasmanthe and Gladiolus will not be affected by frost if they are sheltered on the east by a wall, a large rock, or shrubs and trees. These bulbs will also grow well under the protection of overhanging branches, but must be planted on the north or west side of the trees so that they can receive some sunshine or they will not flower successfully. Some

plants, like *Ixia*, do not open on dull days, and lack of sunshine will cause them to bloom poorly.

Occasionally one finds that, after having brought Cape bulbs successfully to the flowering stage, it is so hot and dry in August and September that the flowers literally shrivel, accustomed as they are to the humidity in the gentle atmosphere during spring at the Cape. It is most difficult for the more delicate *Gladioli* to bloom in hot places like Pretoria. They must be shaded during the hot part of the day and should be planted on a south wall where they receive sun after 3 o'clock in the afternoon.

Semi-shade has the advantage of producing longer stems in flowers like *Sparaxis tricolor*, which will grow up to 18 inches in height. *Sparaxis* and *Ixias* can be planted in full sun provided that the garden is sheltered from cold winds. A north-facing position against a hedge is ideal, and although the stems will be shorter, the flowers will bloom a month earlier and be brighter in colour.

One can build up a large collection of Cape bulbs if one can obtain them in the first place. Some multiply so rapidly that one soon does not know what to do with them. In this pleasant category one may list the Chinkerinchee (*Ornithogalum thyrsoides*); the Mossel Bay Kalkoentjies (*Tritonia crocata*, *T. hyalina* and *T. squalida*), which are known to Americans as Blazing Stars; the painted *Homeria elegans* and dainty *H. lilacina*; colourful Babiana; tall Chasmanthe; curious *Ferraria*; scented *Freesia*; the magnificent Peacock Flower (*Moraea villosa*); starry *Romulea*, *Sparaxis* and *Streptanthera*; choice *Gladioli*, numerous *Watsonias*, and the moisture-loving Arum lily (*Zantedeschia aethiopica*). There are dozens of Cape *Gladioli* that will bloom readily in pots or in the open ground if one could only obtain them.

Seed of many of the lesser-known Cape bulbs can be more readily obtained than the bulbs and is the best means of increasing one's stocks. One must have patience, however, for these seldom bloom before the third season. Rarities such as *Gladiolus venustus* and *Lachenalia mutabilis* are very rewarding to grow from seed, however, as they bloom at the end of the second season. There are very few sources of supply for the bulbs, but they generally multiply well. It is always best to plant at least one dozen of a kind to create any effect, while at least three dozen are needed of the daintier species. Plant both seed and bulbs during March as a general rule. Seed usually takes about a month to germinate and should be kept moist and covered until the young shoots emerge. Keep the seedlings in a shaded place for the first year.

Lesser-known bulbs which are not so easy to obtain,

but grow readily in pots or in the open ground, are *Spiloxene*, *Geissorhiza*, *Hesperantha*, *Lapeyrousia*, *Micranthus*, *Cyanella* and *Homoglossum*. Others like *Antholyza ringens*, *Synnotia*, *Pillansia*, *Anapalina* and *Anomalesia* should do equally well if they were obtainable.

A brief mention should be made of a number of bulbous Cape plants that are desirable for the garden. These do not have true bulbs, corms or tubers, but woody rhizomes or fleshy roots which store food. The best-known example is *Agapanthus orientalis*, an evergreen species from the eastern Cape which is grown almost everywhere. *Agapanthus africanus* is the small evergreen species from the south-western Cape, which has deep blue flowers and which is not plentiful, but grows well in the summer-rainfall area. The Red-hot Poker, *Kniphofia uvaria*, originated in the Cape Peninsula, but its improved garden forms are better known and more freely grown today.

Not so well known, yet one of the most valuable flowers for winter, is *Bulbinella setosa*, popularly known as Katstert (Cat's Tail). It will withstand 13 degrees of frost and bravely displays its bright yellow, poker-like flowers on wintry days, rivalled only by the daffodil. The secret of growing all species of *Bulbinella* in the summer-rainfall area is to plant the fibrous roots in a raised pocket in the rockery in autumn and to water them well in winter. Withhold water as soon as the leaves die off in spring, and try not to water the bed during summer. Summer rains will not rot the plants if the drainage is good. One cannot lift and store these plants successfully as the roots dry out too much and frequently die. *Bulbinella* must not be confused with *Bulbine*, a member of the Lily family with fleshy roots and succulent leaves, which is useful for growing as a ground-cover on poor, shallow soil under trees or on a rocky place.

A pleasant, leafy plant that resembles *Watsonia* is the starry, blue-flowered *Aristea thyrsiflora*, which is valuable because it grows in the shade of trees. It will not suffer if it receives some sun during the morning. *Aristea* is not easy to transplant when mature. The fibrous-rooted seedlings should be planted out while young and watered regularly throughout the year. Two rare plants with fibrous roots that are difficult to grow away from their native haunts are the Wool-Flower (*Lanaria plumosa*) and *Nivenia*. Neither seem to be able to withstand the summer rains or winter frosts of the Highveld and are not likely to be popularly grown in the summer-rainfall area.

The Subtropical and Tropical Species of Protea and Their Possibilities for Cultivation

By J. S. BEARD

THE very interesting and decorative genus *Protea* which is one of the glories of the Cape flora also extends all over Africa south of the Sahara. It is true that the species which are found outside the Cape are neither so conspicuous nor so decorative as some of the Cape ones, but they are very nearly as numerous and some are found extending over vast areas of Africa. Very little has been known about them until recently. Whereas most of the Cape species were known to science and had even been cultivated in Europe by the end of the eighteenth century, the rest had to await the opening up of the African interior very much later and in fact their exploration is not yet complete. New species are still being discovered.

The Cape flora of *Proteas* is confined to the winter- and constant-rainfall zones. It peters out at Grahamstown. Typical summer-rainfall vegetation begins beyond that point and contains a distinct *Protea* flora of its own, with fifteen species, extending to the Soutpansberg. These species have been studied and described by me in *Bothalia*, 7, 41-65 (1958) and in *Trees in South Africa*, IX, 4, and X, 1-3. They occur typically in mountains with a high rainfall, in places where the soil is too thin to support forest, and form an open parkland which probably represents a *fynbos* decimated by fire. The most noteworthy horticulturally is *Protea roupPELLIAE* which belongs to a Cape section of the genus (*Ligulatae*) and resembles both *P. latifolia* and *P. obtusifolia*. It grows readily and should be widely cultivated. *Protea subvestita*, close to *P. laticolor*, is also good and grows easily. Another very fine species is the newly described *P. rubropilosa* from the eastern Transvaal escarpment, a 25 ft. tree with glossy magnolia-like leaves and large pink heads of great beauty. It appears to grow readily from seed. Its close relatives *P. comptonii* and *P. curvata* of Barberton, while sufficiently decorative, are so far proving rather difficult to rear. None of the other summer-rainfall *Proteas* such as *P. caffra*, *P. rhodantha* and so on are sufficiently decorative to be recommended for gardens.

Work on the tropical species beyond the Limpopo is still in progress. (See *African Wild Life*, XIII, 2: June 1959.) I collect as much seed as possible on field trips, which is distributed to collaborators, including Kirstenbosch, and I am building up my own collection of plants. At the time of writing there are thought to be thirty-three valid species, divided into six sections. As in Natal and the Transvaal, the tropical species are creatures of mountain chains and plateaux and are always to be found associated with mountain grasslands at 5,000-7,000 ft. in altitude. Some montane species go higher: *P. kilimandscharica* which is found on all the great East African mountains except Ruwenzori rarely descends below 9,000 ft. On some mountain grasslands the *Proteas* put on a particularly splendid show. For example, on the Vipya highland in Nyasaland at about 6,000 ft. I found *P. madiensis* which is a 6 ft. shrub with large showy red and white heads forming a parkland stretching for miles. Only the one species of *Protea* but millions of bushes: when all in flower in May they were an unforgettable sight. Just below the mountain grasslands there is another *Protea* habitat, the largest one this time, afforded by the vast extent of woodlands of the *Brachystegia* complex which cover such a huge portion of central Africa. *Proteas* commonly, almost universally, occur as understory shrubs in this woodland and occasionally under special conditions become canopy-forming trees. Owing to the vast continuous expanse of this habitat we have a relatively few species which range for thousands of miles, whereas in the mountains we tend to find local species of restricted occurrence. In addition to all these we have a sprinkling of specialized plants, a group of small plants with ephemeral shoots which grow in the short herbage of poor, stony plateaux, and another group of creeping plants found in bogs. The former includes the world's smallest *Protea*, *P. heckmanniana*, whose flower heads are under 1 inch in diameter.

The most striking of the tropical *Proteas* are those of the section *Patentiflorae* in which I should also place the

Cape species *P. arborea* (*P. grandiflora*). They resemble *P. arborea* in growth but—I hasten to add—their flower-heads are a good deal more decorative! The king of them all is unquestionably a giant red form of *P. angolensis* found in northern Nyasaland and westwards into the Belgian Congo. It is a straggling small tree with large bluish leaves and huge heads six inches in diameter of a misty crimson colour. The commoner and more widespread albino form of *P. angolensis* is also quite decorative. This section includes also *P. madiensis* described above, a west African species *P. eliottii* which is similar, and the very curious *P. rupestris* of Central Africa. The latter is an erect tree up to 30 ft. bearing large white to crimson heads in which, on opening, the bracts and flowers reflex completely like the flowers in *Leucospermum reflexum*. This species is probably very primitive, a living fossil like the coclacanth, showing us what ancestral Proteas were like. Unfortunately I have not yet succeeded in growing it from seed.

The section *Leiocephalae* comprises the half-dozen tropical relatives of *P. caffra* and they are not horticulturally noteworthy though they may be botanically interesting, e.g. *P. nyasae* which is only known from famous Mt. Mlanje in Nyasaland. The *Lasiocephalae* are a group with hairy leaves, bracts and flowers and include *P. gaguedi* (*P. abyssinica*) which ranges from Zululand to Abyssinia. They are not decorative and most of them, like *P. heckmanniana*, are dwarf plants. We have however another section of about six high mountain species which somewhat resembles the Cape section *Exsertae* (*P. laticolor*, *P. mundii*, etc.). These are shrubs to small trees with gaily coloured heads opening very widely with the long, wavy styles giving a pincushion effect. Leaves are stiff, bluish. The finest of these is *P. rubrobracteata* from the southern highlands of Tanganyika, a neat domed bush bearing small but very numerous red heads. Two species at present unnamed from the eastern districts of Southern Rhodesia also promise to be good, and *P. wentzeliana* from Nyasaland.

It is still too early to say much about the behaviour of these species in cultivation, as seed is hard to get and does not always germinate when you get it. So far I have only had plants of fourteen tropical species to experiment with. In general they are slow starters and at the end of four years' work none has yet flowered in my collection near

Pietermaritzburg. Those of the *caffra* group respond most readily to Natal conditions, and both *P. gazensis* and *P. petiolaris* from S. Rhodesia have reached 4–5 ft. in height. *P. nyasae*, still in the seedling stage, promises to follow suit. Of the *Patentiflorae*, *P. angolensis* grows readily if slowly and is making sure progress. I have one plant of *P. eliottii* that I am watching with bated breath. *P. madiensis* collected in Uganda has failed to thrive, but I am now working with seed collected in Nyasaland which I expect to do better here. Of the montane group, *P. rubrobracteata* has been a great disappointment: it germinates well, makes good growth its first season, and then makes little or no further progress. However, I am still hoping that in time the survivors will become established. On the other hand *P. wentzeliana* promises to be much more successful and does not seem to mind being brought down from its native altitude of 7,500 ft. One of the new Rhodesian species in this group is also very promising. With novelties of this kind one has to persevere patiently over many years, but it is intensely interesting work.

The difference in the behaviour of Cape and tropical species in their young stages as garden plants seems to reflect their behaviour under natural conditions. Speaking generally, components of Cape fynbos are relatively short-lived plants which are destroyed by fire at intervals, after which they regenerate freely and rapidly from seed. The summer-rainfall and tropical species inhabit grasslands which are burnt much more often. Instead therefore of regenerating from seed after a fire once in a decade they must possess a quality of fire-resistance. Their seedlings at first make little height-growth but establish a well-developed root system: the base of the stem thickens into a lignotuber which becomes an underground root-stock. During the first few years if the shoots are burnt they are replaced by coppice from the root-stock. Eventually there is rapid upward growth by stout shoots with thick corky bark which is fire-resistant, and a bush or small tree is produced which is not destroyed by fires. Some species appear to have so evolved that they have lost this last stage of their growth and develop each year ephemeral shoots which flower and wither in autumn, withdrawing the food reserves from the shoots underground before these can be destroyed by fire or frost.

My First Year as a Wild-Flower Grower

By S. MACPHERSON

MUCH has been written in the last few years on how to grow wild flowers. I recall a stage show called *Something Without Tears*, but this cannot be said of wild-flower gardening.

I am situated on the Cape Flats area below the rock faces of Constantiaberg, on a plot that was overrun with Port Jackson Willow (Wattle) and Cluster Pine. The soil is very sandy and presently very acid.

On arrival at my new home in November 1957, I had all the Cluster Pine removed and left a Stone Pine right on the fence, since building restrictions forbade its removal. The wattle had been bull-dozed flat, and it is only a matter of weekly weeding which is still in progress to keep the seedlings down.

Although the area of our house has been covered with pine and wattle for the last twenty years, there are still many wild flowers to be found. We have had *Babiana hiemalis* (Crocus), *Ixia maculata* (Yellow Ixia), *Serruria glomerata*, *Erica subdivaricata* and numerous others, including vygies, appearing through the buffalo grass. I should like to warn gardeners in the sandy areas of the Cape Peninsula to beware of the Fine Quick grass which is common and a fast grower. You might get a lawn very quickly but it kills off all bulbs and plants by smothering their root systems. Buffalo is a coarse grass and is at first a slow grower, but once established it retains its green colour throughout the year.

I tested the soil and found it to be completely lacking in phosphates but abundantly rich in nitrogen and potash. Having cleaned up the soil by the removal of builder's trash, pine needles and root systems of pines and wattles, I proceeded to plan where to plant wild flowers when March arrived.

Armed with Eliovson's *South African Wild Flowers for the Garden* and van der Spuy's *Gardening in Southern Africa*, I ordered the seeds I required from Kirstenbosch through the free issue to members of the Botanical Society of South Africa.

It was a long, dry summer and it was only in May that the weather cooled and the first showers fell, so I prepared cement seed-trays, jam-tins and beds to receive the seeds. It was a long, tiring job sowing the packets, together with all the seed I had collected on the mountains during the preceding two years.

In the beds in the garden itself I sowed Bokbaavgygies (*Dorotheanthus bellidiformis* and *D. oculatus*), Gousblomme (*Gazania pinnata*), Ursinias (*U. anethoides* and *cakilefolia*), Cineraria (*Senecio elegans*), and Kingfisher Daisy (*Felicia bergeriana*). These all germinated well except the Felicia, which did not appear at all.

Within two months of transplanting in July, the Gousblomme were flowering, the Ursinias and Senecios were the envy of neighbours who were battling to get domesticated seeds to grow and flower. The Bokbaavgygies started flowering in August and we had them until the end of November. One good tip I can give is that although they grow easily in the ground where they have germinated, better results are obtained when transplanted. Do not place too close together since they will spread up to six inches from the stem in all directions.

I transplanted both seedlings and adult plants of all the above at will and they did not seem to have any objections, but water is required immediately after moving.

I sowed Ericas, Babianas and a few other bulbous-plant seeds in cement seed-boxes, but our mushroom-coloured kitten decided these were preferable to his own sand-box and so for one year I lost all my efforts in that direction.

I bought some potting-soil from a local nursery in which to sow all the wild-flower seeds. All the trays and tins were lined with stones at the bottom, and sufficient holes to give maximum drainage were provided. It is also better to water the seedlings from below when they get older, and the better the drainage, the better the water is absorbed through the soil and sand in the tray or tin when standing in water. I usually wait for the water to break through the top crust of soil and then cease immersion.

I was especially delighted with the two *Mimetes hirta* that I germinated, since I believe Mr. J. S. Linley is the only other person who has had any success in this direction. Members who have attended the annual wild-flower show at Kirstenbosch in October of the last few years will no doubt remember his entries of this magnificent protea. These I kept alive and transplanted into bigger tins, but one hot day and a lack of moisture killed them. (See where the tears come in!)

I kept a record of my germination of Proteaceae and give this below:

	Planted 4/5/58	Total seedlings as at		
		22/6/58	20/7/58	17/8/58
<i>Paranomus reflexa</i> (Green bottlebrush)	12	—	—	—
<i>Leucadendron argenteum</i> (Silver tree)	14	8	8	7
<i>Protea minor</i> (Aardroos)	20	1	1	1
<i>Mimetes lyrigera</i> * (Rooistompie)	40	—	—	—
<i>Mimetes hirta</i> (Marsh mimetes)	12	1	2	2
<i>Leucadendron grandiflorum</i>	16	9	9	10
<i>Protea cynaroides</i> (Giant protea)	16	11	11	11
<i>Protea compacta</i> * (Bot River protea)	16	7	5	5
<i>Serruria aemula rosea</i> (Lesser blushing bride)	10	—	—	—
<i>Protea mellifera</i> (Suikerbos)	25	1	1	1
<i>Protea odorata</i> (Scented protea)	50	—	—	—

* Kirstenbosch seed.

I planted out about 50 per cent of the proteas at six months old but the *Leucadendron argenteum* did not like this and damped off. The *L. grandiflorum* did not turn a leaf brown and are going ahead. I shall plant out my remaining *L. argenteum* next March, when they will be nearly one year old. Mrs. Eliovson mentions in her book that they should only be planted out on the first anniversary, and I proved it the heart-breaking way.

Protea compacta and *P. mellifera* did not particularly like this early transplant, and those in tins grew better than those already sited in the garden.

I purchased a few Keurboom (*Virgilia oroboides*) and these have done very well. From 2 ft. high plants of single stems they have grown into 8 ft. high trees and bushed to a diameter of 6 ft. I also sowed seed in September and quite a few are now dotted around awaiting the growing-season when the heavy winter rains of next year start to ease off.

Cuttings of *Erythrina caffra* (Kaffirboom) from my relation's farm near East London have struck, and although growth is slow, they regularly give forth leaves and new branches. I had to move one of them after it had produced its first leaves, but this has not deterred its progress.

I also sowed seeds in September of *Indigofera cylindrica* and *I. frutescens*. These also did well and will make a good show next year. They transplant readily and grow quickly after removal from the seed-box.

Crotalaria capensis (Cape laburnum) I hope will bush during the next winter and in two years give me its pretty yellow flowers. This is a good shrub for the garden and rapidly fills an open patch.

During my mountain travels I (or my wife does anyway) collect cuttings of Pelargoniums. I find these are temperamental but generally only too happy to take root. I found a particularly hardy one in the Swartberg and I am hoping this does well. From where I collect my seeds of *Mimetes hirta* near Cape Hangklip, I once took about 8 inches off a Pelargonium. After one year this stood 4 ft. high and is filling a corner, being 2 ft. deep in some places. It is evergreen and therefore very welcome in a wild-flower garden, which is unfortunately only at its colourful best for three months of the year.

I was given some forty *Amaryllis belladonna* (March Lily) bulbs, and these have grown leaves but I shall have to wait till the end of the summer in 1959 to see if they flower. Bulblets can be secured from old bulbs of five years' standing or more. They come to flower at a time when the average wild-flower garden looks like the Karroo after an extended drought, and give it a bit of life. I am also growing *Haemanthus* and *Brunsvigias* from seed and I have hopes to see these in flower before ten years have passed! (Seven years if I am lucky, some say.)

I have been given some succulents and other plants of this calibre but shall deal with them when I can afford to erect a suitable rockery. I must mention however that *Roechea coccinea* (Red Crassula) is really worth having since it grows quickly and flowers in mid-summer.

I have done little or nothing to my soil and I find that with the wild flowers it seems to be finding its own level of acidity. I give dry cow-manure to most of the plants and they thrive on it. Proteas do not seem to mind this fertilizer either, but it must be dry and well mixed with the soil around the plant. My ground is almost flat and is certainly not a show garden yet, but I get an enormous amount of satisfaction growing South African wild flowers, especially if I have collected my own seeds.

By the way, those neighbours who were jealous of my Ursinias and Senecios do not have to worry any more: they seeded so well that the whole district will be like Namaqualand next spring.

Algemene Wenke oor die Kweek van Inheemse Plante van Saad

Deur H. F. WERNER

(*Kurator, Nasionale Botaniese Tuine van Suid-Afrika, Kirstenbosch*)

DIE inligting wat hier verstrek word handel met plantsoorte soos genoem in die Saadlys wat deur die Nasionale Botaniese Tuine, Kirstenbosch, uitgegee word. Insgelyks is die saaimetodes en -tye die wat op Kirstenbosch gebruik word, maar dit is moontlik dat hulle gewysig moet word, waar nodig, om by enige spesiale toestande in die Unie of buite die Unie aan te pas.

Hoewel die Unie van Suid-Afrika globaal gesproke klimaties verdeel kan word in twee reënvalstreke — winterreënval (van einde Maart of vroeg in April tot Oktober) en somerreënval (van September of Oktober tot Maart of April) — verskil die hoeveelhede aansienlik van een distrik na 'n ander. Kirstenbosch, byvoorbeeld, terwyl dit tot die vorige streek behoort, ontvang boonop taamlik baie reën gedurende die somermaande, nietemin moet kunsmatige bewatering op die somerreënvalplante toegedien word sodat hulle deeglik sal groei. Die teenoorgestelde is die geval in ander dele van Suid-Afrika waar bewatering gedurende hul droë winter nodig is om toestande van koelheid, plus vogtigheid, te benader wat gedurende die groeiseisoen vir winterreënvalplante vereis word.

Ryp is nog 'n faktor met merkbare variasies. Terwyl Kirstenbosch rypvry is, ten spyte van lae lesings sommige winters, ondervind sommige ander gebiede in Suid-Afrika skerp of selfs swaar ryp en sal slegs vir taai soorte geskik wees. In hierdie opsig dien daar egter op gelet te word dat baie soorte werklik slegs in die saailingstadium beskerm moet word. Dit beteken beskerming teen ryp, beskutting teen oormatige hitte, en natuurlik voorsiening teen droogte totdat die plante sterk genoeg is.

VOORBEREIDING VAN GROND EN SAAD

Daar bestaan 'n neiging om inheemse plante met minder aandag vir hul welsyn as ander tuinplante te behandel. Dat behoorlike behandeling en versorging die kweker sal vergoed, word by die Nasionale Botaniese Tuine, Kirstenbosch, bewys. Die spit en voorbereiding van die grond is van die grootste belang en, wanneer die bedding deeglik omgespit is, moet 'n laag kompos,

tesame met 'n bestrooiing klaargemengde kunsmis, of superfosfaat, sê omtrent 2 onse per vierkantjaart, toegedien en ingehark word. Dit moet vir 'n week of twee gedoen word alvorens daar geplant of gesaai word. Net voordat daar werklik geplant of gesaai word, moet daar 'n ligte bestrooiing landboukalk toegedien word, die oppervlakte van die bedding met die graaf platgedruk en dan gelyk gehark word.

Die saai van saad en oorplanting moet alleenlik in klam grond gedoen word. As die grond baie droog is kan dit 'n dag of twee vantevore natgegooi word. Die grond wat vir saadbeddings gebruik word moet van 'n ligte aard wees. Insgelyks wanneer saad in saadkassies (taamlik vlak kassies of blikke) gesaai word, moet die grond van 'n ligte aard wees, verryk met 'n bietjie kompos of blaargrond. Wanneer saadkassies voorberei word, sorg dat 'n bietjie growwe materiaal op die bodem bo die gate geplaas word vir dreinerings, en maak seker dat die grond na die kante egalig afgedruk word en dat die oppervlakte gelyk gedruk word ('n stukkie bordpapier is nuttig). Saai saad yl. Saad moet nie diep gesaai word nie: die gemiddelde soorte saad moet nie meer as twee of drie maal hul eie deursnee bedek word nie. Fyn saad moet net bedek word en by voorkeur in saadkassies gesaai word, terwyl baie fyn saad slegs op die oppervlakte van die grond in 'n pot gesaai moet word (*Streptocarpus*, *Erica*, ens.).

ENSAADLOBBIGE PLANTE

Die meerderheid van die soorte wat in die Nasionale Botaniese Tuine se Saadlys genoem word is winterreënvalplante, en aangesien hul groeityd ooreenstem met die koel maande van die jaar, en die rustydperk gedurende die somer 'n aanvang neem (behalwe waar die soort immergroen bly) is Maart-April die beste tyd om winterreënvalplante te saai. Hulle kan of in saadkassies gesaai en die saailinge gelaat word om bolletjies te vorm vir ongeveer die eerste jaar voordat hulle uitgeplant word, of mens kan die saad in vlak voortjies op afstande van 6–9 duim oor die kwekerybeddings saai en

die bolletjies vir 'n jaar of twee laat alvorens hul uit te haal en oor te plant (Februarie of Maart). Hetsy daar in saadkassies of beddings gesaai word moet hulle in elke geval yl gesaai word om rekening te hou met ontwikkeling wanneer hulle die tweede seisoen blomme dra, maar hulle moet verwyder word ten einde krag te behou; insgelyks om hulle te help om so gou as moontlik blom-mende grootte te bereik, voorsien gedurigdeur die saai-linge van water solank as wat hulle groei, en slegs wanneer die blare heeltemal verdroog moet hulle nie meer natgegooi word nie. Moet in elk geval nie toelaat dat *Bulbinella* spp. verdroog nie.

Die beste tyd om somerreëvalplante, veral ten opsigte van *Agapanthus*, *Dierama*, *Eucomis*, *Gloriosa*, *Kniphofia*, *Littonia*, *Ornithogalum Saundersiae*, *Strelitzia* en *Zantedeschia*, te saai is in September-Desember in saadkassies soos hierbo beskryf, behalwe dat *Agapanthus*, *Dierama*, *Kniphofia* en *Strelitzia* in ander saadkassies oorgeplant moet word en dan in kwekerybeddings uitgeplant word en aan die groei gehou word uit hoofde daarvan dat hulle immergroen plante is. Insgelyks moet bladwisselende *Agapanthus* en *Watsonias* oor die algemeen ook nie toegelaat word om te verdroog nie. Al die soorte genoem in die Nasionale Botaniese Tuine se Saadlys is sonliefhebbers, maar *Littonia modesta* hou gedeeltelik van skaduwee. *Gloriosa* aard blykbaar goed in son asook gedeeltelik in skaduwee.

EENJARIGES

Hulle kan in Lente-eenjariges (in Maart-April gesaai) verdeel word. Hulle bestaan uit die meerderheid wat in die Nasionale Botaniese Tuine se Saadlys genoem word; en Somer-eenjariges (in Augustus-September gesaai) wat hoofsaaklik bestaan uit: *Arctotis grandis*, *Ceratotheca triloba*, *Gynandropsis pentaphylla*, *Lobelia erinus*, *Monopsis campanulata*, *Senecio elegans* var., *Sesum capense*. Die volgende word vir beide Lente en Somer gebruik: *Dimorphotheca sinuata*, *Matricaria globifera*, *M. multiflora*, *Osteospermum amplexans*, *O. hyoseroides*, *Venidium fastuosum*.

Al die eenjariges kan yl gesaai word hetsy in kwekerybeddings en dan in permanente plekke oorgeplant of in saadkassies en dan 1½–2 duim van mekaar in ander saadkassies oorgeplant voordat hulle finaal uitgeplant word. As 'n tweede keuse kan hulle *in situ* gesaai en uitgedun word, maar dit is 'n meer lukraakmetode wat ietwat omslagtige skoffel met die hand en uitdunning meebring terwyl die saailinge nog klein is. Al die eenjariges kan oorgeplant word. Die oorplanting moet geskied voordat die plante te groot word. Hulle is almal sonliefhebbers.

MEERJARIGES

Hulle sluit sommige half-struikagtige meerjariges in. Die beste tyd om saad in saadkassies te saai is in September-Desember en om hulle dan ongeveer 2 duim van mekaar in saadkassies of in enkele houers (2-pond konfytblikke, met gate in die bodem vir dreinerings, of klein erdepotte) oor te plant voordat hulle finaal uitgeplant word. Die uitplanting uit afsonderlike potte is oor die algemeen die veiligste manier om vir alle soorte te gebruik. Al die meerjariges is sonliefhebbers, behalwe *Begonia*, *Plectranthus* en *Streptocarpus*, wat 'n skaduryke vogtige plek nodig het, en eers- en laasgenoemde moet op die oppervlakte van die grond in 'n pot gesaai word (sien aantekeninge oor *Ericas*). *Dissotis incana* en *Dobrowskya tenella* verkies 'n sonnige, vogtige plek.

STRUIKGEWASSE, BOME EN RANKPLANTE

Die kweek van struikgewasse en bome in private tuine word baie verwaarloos, tog is dit taamlik eenvoudig wanneer geduld en behoorlike versorging uitgeoefen word. Oor die algemeen is die beste tyd om saad van die soorte wat in die Nasionale Botaniese Tuine se Saadlys genoem word (behalwe *Barosma* spp.—gesaai in die Herfs) ongeveer September-Desember in saadkassies te saai. Lede van die *Proteaceae* (*Aulux*, *Leucadendron*, *Leucospermum*, *Mimetes*, *Paranomus*, *Protea*, *Serruria*), asook *Erica* spp. word hieronder afsonderlik behandel.

Sommige struikgewasse en bome het saad met baie harde doppies, waaroor kokende water gegooi moet word en wat toegelaat moet word om twaalf uur lank te staan voordat hulle gesaai word. Krap en vyf van saad is ander maniere om ontkieming aan te moedig. Nadat daar gesaai word moet die saadkassies in 'n warm, beskutte plek geplaas word. Die ontkiemingstempo verskil aansienlik: dit is belangrik om in hierdie opsig te voorkom dat die grond vinnig uitdroog en om te probeer om 'n egalige mate van vogtigheid te handhaaf. Fyn saad is veral vatbaar vir wisselings in hierdie opsig.

Wanneer saailinge vir hantering geskik is word hulle of in saadkassies as 'n tussenstap of as enkelinge in blikke (2-pond konfytblikke is nuttig) oorgeplant. Die saailinge moet sorgvuldig gehanteer word sodat hul sywortels nie beskadig word nie; maar dit sal nie beskadig word as die punt van die stamwortel afgesny word nie; in werklikheid sal dit die plant baat. Na oorplanting moet jong plantjies in skaduwee gehou word totdat hulle hulle weer gevestig het. Gedurende die warmste tydperk van die jaar is dit goed om hulle met 'n raam van strokieshout wat bo-oor hulle opgerig word te beskut—die raam word weer teen die end van die somer verwyder.

Dit kan verkies word om die jong plantjies nog 'n seisoen te laat groei voordat hulle uitgeplant word. In so 'n geval kan hulle na groter blikke, sê 7-pond konfytblikke, oorgeplaas word. Daar moet nie toegelaat word dat die jong plantjies deur hul houers wortelskiet nie en enige wortels wat deur die dreineringsgate te voorskyn kom moet periodiek verwyder word.

Ericas moet in Maart-April en Augustus-September gesaai word. Saai by voorkeur in potte. Gebruik 'n paar stukkies gebreekte baksteen, dan 'n bietjie mos of ander materiaal om die dreinerings suiwer te hou, 'n stewige oppervlak en gooi nat met 'n fyn sproeier en laat toe om te dreineer, saai dan die saad en laat hulle of onbedek of sprinkel 'n bietjie sanderige grond daaroor. Plaas potte in 'n warm, beskutte plek; hou hulle beskut en vogtig deur 'n ruitglas, plus 'n blad koerantpapier daarbo, oor die potte te plaas. Wanneer die saad ontkiem word die papier verwyder en lug toegelaat deur die glas te laat skuins staan totdat die glas heeltemal verwyder kan word. Die potte moet nooit toegelaat word om droog te word nie; maak nat deur hulle tot by hul rande in water te dompel en laat water opwaarts deursyfer; hou die saailinge beskut; sodra hulle geskik is om gehanteer te word, word hulle ongeveer 1½ duim van mekaar in saadkassies van mooi stewige ligte grond met blaargrond of kompos daarby oorgeplant. *Ericas* haat kalk, d.w.s. hulle het 'n suur grond nodig.

Wanneer die saailinge 1-2 duim hoog staan, en met so min steuring van die wortels as moontlik (deur die grond in vierkantige blokkies te sny) haal hulle sorgvuldig uit en plant elke saailing, met grond daarby, in klein potte of 2-pond konfytblikke. Wanneer hulle van die oorplassing herstel het en groei, maak hulle aan volle son gewoond. Hulle word in hul tweede seisoen finaal uitgeplant—ongeveer April wat in die winterreënvalstreek met die begin van die reënseisoen sal ooreenstem, maar elders sal dit bewatering meebring om 'n goeie mate van vogtigheid te handhaaf en sodoende enige agteruitgang van die plante voorkom.

Leucadendrons, *Leucospermums*, *Proteas*, *Serrurias* en ander Proteaceae moet in Maart-April, by voorkeur in kwekerybeddings van ligte grond met blaargrond en kompos daarby gesaai word. Die beddings moet in die buitelug wees en op generlei wyse beskut word nie. Voortjies word 1 duim diep gemaak (kan maklik gedoen word deur 'n strook hout van die benodigde wydte in die bed in te druk) op afstande van 6-9 duim oor die bedding. Die saad word 'n duim of wat van mekaar in die voortjies geplant, met sanderige grond bedek, en goed natgegooi om die grond te laat vassak,

en daarna klam gehou. Die saad kan ook in saadkassies gesaai word, maar daar moet gesorg word dat dit nie uitdroog nie aangesien wisselings van hierdie aard ontkieming sal vertraag—tot so 'n mate dat *Leucospermums* nooit ontkiem nie. Ontkieming verskil volgens soort, maar dit kan drie weke of langer duur voordat die saadlobbe bo die grond verskyn.

Sodra die saailinge die eerste egte blare gevorm het, moet hulle uitgehaal word, die groeipunt van die stamwortel afgesny en die saailinge dan in afsonderlike blikke geplant word (2-pond konfytblikke is nuttig, behalwe vir *Leucadendron argenteum* („Silwerboom”) wat vinnig groei en 'n groter blik nodig het). Die grond vir die blikke is enige gemiddelde ligte tuingrond, verryk met 'n bietjie kompos of blaargrond, asook 'n beenmeel indien beskikbaar. Wanneer in blikke geplaas moet die saadlobbe van die jong plantjies net bo die vlak van die grond gehou word, d.w.s. die jong plantjies effens dieper in die blikke geplant as wat hulle in die saadbedding was. Hulle word natuurlik natgegooi sodat hulle hulself kan vestig, maar die daaropvolgende natgooi daarvan moet sorgvuldig gereël word, aangesien dit maklik kan gebeur dat die jong plantjies onder oormatige nat toestande te veel vogtigheid kry. Die groeitempo is taamlik stadig in die begin, maar met die aankoms van warmer weer is vooruitgang meer bespeurbaar. As dit goed groei, ondersoek die plante van tyd tot tyd, en verwyder enige wortels wat deur die bodems van die blikke kom ten einde te voorkom dat hulle wortelskiet. Op hierdie stadium moet die plante gekneus word (behalwe die „Silwerboom”) om weelderige groei aan te moedig. Die Proteaceae haat kalk, d.w.s. hulle het 'n suur grond nodig.

Die jong plantjies word as eenjaaroues uitgeplant. By die uitplanting moet die plantjies nie te veel gesteur word nie. Om hierdie rede moet sorg gedra word dat die plante in die blikke nie te droog is nie, sodat die stuk grond en wortels saam maklik verwyder kan word. Plant stewig en gooi die plante goed nat.

Indien die blikmetode om sterk eenjaaroue plante vir uitplanting te kweek onmoontlik is, dan kan saad *in situ* in voorbereide plekke in die tuin in groepe van drie saadjies gesaai en die surplus oorgeplant word. As 'n tweede keuse kan die saailinge van die saadbedding regstreeks in hul permanente plekke geplant word, maar volgens hierdie metode sowel as die vorige sal daar minder beheer oor die saailinge wees.

VETPLANTE

Saad kan van September tot Maart gesaai word, en vir hierdie doel is potte van 'n grootte van 2½-4 duim

die beste vir fyn saad. Die grond moet van 'n ligte sanderige aard wees. By die voorbereiding van potte en die saai van saad, sowel as beskutting met ruitglas en koerante, sien aantekeninge oor *Ericas*. Daar dien op gelet te word dat saad van 'n aantal soorte gerieflikheidshalwe in hul doppies gedistribueer word. In so 'n geval moet die saad natuurlik van die doppies verwyder word voordat daar gesaai word. Die fyn saad moet slegs effens met baie sanderige sand gesprinkel word nadat daar gesaai is en nie van bo natgegooi word nie, maar gebruik die deursyferingsmetode in plaas daarvan. Die saadpote moet klam maar nie nat gehou word nie, en dus sal die dreinerings goed wees. Dit sal nuttig bevind word ten einde die mate van vogtigheid te handhaaf om

die potte tot by hul rande in sanderige grond te dompel.

Warmte vir die saailinge is noodsaaklik, maar regstreekse son in die warmste maande van die jaar moet vermy word: 'n raam van strokieshout wat bo die saailinge opgerig word (of takke met baie klein takkies daaroor geplaas) is nuttig. Die saailinge word ongeveer $1\frac{1}{2}$ duim van mekaar in saadkassies of potte van ligte grond oorgeplant en toegelaat om versigtig te groei, sonder hantering, deur 'n bietjie water van tyd tot tyd te voorsien—net genoeg om die plante aan die groei te hou en te voorkom dat hulle verdor. Wanneer die saailinge hul volle grootte bereik het sal hulle weer beter in stand wees om droë toestande te weerstaan.

Growing Proteas and Some Other Indigenous Plants

COMPILED FROM AN ILLUSTRATED TALK GIVEN IN THE LECTURE HALL 26 MAY 1959

By MRS. E. R. MIDDELMANN

WHEN people ask me how I came to raise Protea seedlings and what made me start a nursery I can only tell them that from the time I first saw Proteas, Ericas and other typical wild flowers of the western Cape I felt an obsession to grow them myself. With the first few successes, and perhaps fired by my own enthusiasm, I found many others were bitten by the same bug. Since they could not, or would not, all go through the often long and laborious trouble of raising these plants themselves it became obvious that there was a demand for my plants, and this in turn caused me to improve my methods and to widen the field. Thus my nursery was born.

Before telling you a little about my methods I must sound a word of warning to those who so easily despair when they try something and it does not at once succeed. Plants are living things and their ways must be studied and found out with patience. There is no definite recipe covering all conditions; and most of our indigenous wild flora can be rather slow, taking years to attain reasonable size and to produce their much-desired flowers. Couple this with the difficulties of procuring seed, of poor and varying germination, of the hazards of 'damping off', and you will agree that steadfastness and sticking to one's purpose are essential requirements quite apart from mere patience.

Where do I get my seeds? Firstly, of course, I have my own plants, many of which were put in during the first years of my efforts and now bring their rewards. Apart from that I am lucky enough to have at my disposal a large piece of mountainside of our own which we carefully tend as a private nature reserve owing to its very rich resources (over thirty varieties of Proteaceae and about three dozen Ericas to mention only two groups). Then there is the Botanical Society, in collaboration with Kirstenbosch, which supplies its members annually with seeds. As a registered nursery I can buy larger quantities of seeds from the Gardens as well, but apart from that my family and I go on regular seed-collecting trips to various parts of the country. The necessary permits from the Administrator and the respective land-owners have to be obtained before setting out on our

hunt; and we remember not to collect within fifty yards of the centre of a public road or in nature reserves. I try to collect seeds only in areas where there are many bushes of the same species in order to be able to grow the pure strain. I must admit, though, that some hybrids are outstandingly beautiful, but my purpose is the cultivation of as many pure species as possible.

The first step in seed-collecting is the spotting of Proteaceous growth. Off I go into the mountains with potato pockets and paper bags into which the various kinds of old flower-heads go. Protea heads must be one year old before seeds are ripe, and should be taken from branch corners, not from the tips of the branches. Leucospermums drop their ripe seeds three to four months after flowering, and these ought to be picked up before the field-mice can enjoy them or black ants pull them into the ground.

Each lot of seed is marked according to species, locality and date. All these notes are afterwards entered into a special list for future reference. When we arrive back home all flower-heads are put out into the sun to allow them to dry and release their seeds. Now starts the never-ending occupation of seed-sorting. In some instances fertile and infertile seeds are easily distinguishable. In others I have to squeeze every single seed between my finger-nails to feel the difference. It takes almost the whole of my spare time in summer to prepare what I need for the season.

March is the best time for sowing seeds in the Cape, when there is still some summer warmth available. The percentage of germination varies considerably. Proteas and Leucadendrons, on the whole, germinate well, Leucospermums badly. As an illustration, the following results were recorded on one occasion:

Leucospermum conocarpus, 960 seeds sown, 14 germinated
Leucospermum catherinae, 1,000 seeds sown, 12 germinated

I have tried several treatments of seeds before sowing, such as soaking in hot water, even burning a quick fire over them, but nothing seemed to help. My seeds are sown in seed-boxes on an elevated stand for protection

against field-mice and covered with chicken-wire against birds. The seeds themselves are covered with river sand, as the young seedlings can push through it easier than through soil which may be lifted in one piece with the seedlings remaining lanky and yellow underneath it. In spite of the protection of the seeds against outside enemies, heavy losses of seedlings often occur due to 'damping off'. Various sprays have not yet solved this problem.

I transplant my seedlings into single tins at the showing of the first true leaves. The young plants are cared for in the nursery for one year before being transferred into open ground where they have to fend for themselves. I found that *Leucospermums* and some *Leucadendrons* react well to a mixture of sour sandy soil and compost

(leaf-mould) in their tins, whereas most *Proteas* seem to prefer the sour mountain soil and do not really profit from admixture.

Over the years I have collected data on the successes of many of my clients in all parts of the Union, Rhodesia and South West Africa, and I have seen many of my plants in the Transvaal and Natal. The difference between a *Protea* bush or an *Erica* plant as it is found on our Cape mountain-sides and the same thing cultivated in a garden, in deep, rich soil in the summer-rainfall area, well watered by the owner in the dry winter, can be truly amazing, both in growth and appearance. These plants are far more adaptable than one usually thinks, and the work of people like Mrs. M. M. Vogts of Pretoria and Mrs. S. Eliovson of Johannesburg has proved this.



SEED DISTRIBUTION, 1960

Your copy of the 1960 seed list is enclosed with this Journal, together with an addressed envelope to the Director, National Botanic Gardens.

This has been designed to save time and it would be sincerely appreciated if members would kindly make use of this service.

Plant a Festival Tree to Celebrate Union's Golden Wedding

By WILFRID A. JEFFS

AS we all know, the year 1960 is to witness nationwide celebrations in honour of the fiftieth anniversary of Union.

Celebrations of all kinds are joyous affairs and are marked by efforts of various nature to imprint the occasion on the memory. But human memories are often somewhat transient, and so great events are usually perpetuated by the creation of some visible, lasting and tangible memorial of the occasion. It may be a statue to the memory of some great man, the building of a new hospital wing or a home for the aged.

All good things, but how much lovelier to have an actual living memorial, something that will grow in beauty and the pleasure it gives from one generation to another!

Obviously the planting of Festival trees suggests itself: trees that will grow in stature and dignity with the years, that will cast their grateful shade over generations yet unborn, provide leafy harbourage for the birds and with their rustling *obbligato* add to the symphony of the winds that blow through them.

There is ample precedent for the planting of trees in both private and public gardens as a memorial to next year's celebration of Union. In the past great forests have been planted and survive today as a green and living tribute to the memory of their one-time owners. True, those forests were usually planted with an ulterior motive, such as for the provision of hunting-grounds for some long-dead lover of the chase or to furnish greater privacy for some great house. But who can quibble at that, since today the ancient trees that populate them give pleasure to the many?

In more recent years, particularly in Europe and America, there have been vast plantings of shade and ornamental trees, from noble avenues to individual specimens, to commemorate such events as coronations, the visits to various countries of distinguished persons, and to provide a living memorial of some great historic event or the occasion of a nation's rejoicing. The Japanese have done much in this respect and many public parks and even thoroughfares in various parts of the world have been beautified by the planting of the lovely flowering cherries for which Japan is so famous,

the trees being donated by the Japanese Government as a gesture of good will and a lovely annual springtide reminder of the love of its people for flowers.

Similarly, our friends in Holland annually distribute millions of flowering bulbs for the beautification of hospital grounds, public parks and various institutions. True, these are perhaps something in the nature of a living advertisement of the great bulb industry of the Netherlands, but 'sweet are the uses of advertisement' and doubly sweet when the publicity is provided by growing flowers.

There is no need to endeavour to make out a case for the planting of trees as a permanent memento of the Festival of Union, for it is proved to the hilt. What is needed, perhaps, is a reminder to the public, both public authorities and individuals, to plant trees and to give, perhaps, a little guidance as to the species to be planted. And since we are now in the tree-planting season I would suggest that there is no need to wait until 1960 to get many of them into the ground; plant them now and their first young leaves and promising shoots will add their greeting to Festival Year.

All readers of this Journal are lovers of our indigenous flora; they must be or they would not be members of the Botanical Society of South Africa, seeking to encourage others to appreciate, protect and grow the flora of our own land. Therefore it goes without saying that trees chosen for Festival planting should be of our indigenous species. There is rich choice, whether for private garden or more large-scale planting.

The Proteas and our famous Silver Tree naturally suggest themselves, and incidentally stress the point that these two trees are the only two species many South Africans recognize as being indigenous to the country, although they may have heard of such trees as Stinkwood and Imbuia. The Silver Tree and several of the Proteas have well proved their worth as garden trees, given the right conditions, and it is no uncommon sight nowadays to see these growing in gardens in all the provinces, the Silver Tree having well disproved the old belief that it could not be happy away from the sight of Table Mountain and the sound of the sea.

A good garden tree which is becoming fairly well

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Botanical Society of South Africa

CALENDAR OF MEETINGS FOR 1959

Saturday, 14th March, 2.30 p.m.

A Botanical Ramble in Nerine Time. 'Tierbos',
Hout Bay (Dr. and Mrs. S. H. Skaike's Garden).
Cars meet Hout Bay Motors, 2.25 p.m.

Tuesday, 24th March, 8.15 p.m. Lecture Hall, Kirsten-
bosch.

Annual General Meeting, followed by 'Indigenous
Orchids of the Cape and Natal'. Illustrated Talk
by Dr. P. M. Smythe.

Tuesday, 31st March, 8.15 p.m. Lecture Hall, Kirsten-
bosch.

'Protea Hunting in Nyasaland.' Talk accompanied
by Colour Slides, by Dr. J. S. Beard.

Tuesday, 26th May, 8.15 p.m. Lecture Hall, Kirsten-
bosch.

'Growing Proteas and Some Other Wild Flowers.'
Talk and Demonstrations by Mrs. Ruth Middell-
mann. Colour Slides.

Friday, 26th June, 8.15 p.m. Natal Museum, Pieter-
maritzburg.

'South African Wild Flowers with Special Reference
to Proteas.' Illustrated Talk by Professor H. B.
Rycroft, Director, National Botanic Gardens of
South Africa, Kirstenbosch.

Tuesday, 11th August, 8.15 p.m. Lecture Hall, Kirsten-
bosch.

'The Mystic Mandrake and other Fabled Plants.'
Illustrated Talk by Professor W. E. Isaac.

Saturday, 12th September, 3 p.m.

Annual Visit to the Karoo Garden, Worcester.

Saturday, 3rd October, 11 a.m.

Annual Gathering of Members, Kirstenbosch.
Followed by **Wild Flower Show**, Lecture Hall,
Kirstenbosch.

Sunday, 4th October, 11 a.m.

Continuation of **Wild Flower Show**.

Saturday, 31st October, 3 p.m.

'Visit to a Member's Garden.' Old Nectar
Nurseries, Jonkershoek. Gen. and Mrs. K. R. van
der Spuy. Cars meet Stellenbosch Post Office,
2.30 p.m.

1960

Saturday, 9th January, 3 p.m. The Lawn, Kirstenbosch.
Special Gathering for Visiting Members. Conducted
Tour of Kirstenbosch.

*Members are cordially invited to bring their friends to the meet-
ings. Please telephone Secretary re visits to Members' gardens.*

Have Your Friends Joined the Society Yet? If Not, Why Not?

known is *Dais cotinifolius*, fully as attractive as many an exotic tree and even more garden-worthy than some. Its virtues as a tree for street- and avenue-planting are becoming more and more recognized by public authorities.

What lovelier tree can you find for planting as a specimen on a lawn than the Podocarpus or Yellowwood? If your lawn is a small one then something of smaller stature might be preferable, in which case there is the indigenous *Celtis kraussiana* with its greyish foliage, white bark and distinguished appearance generally.

Happy are those who dwell in our frost-free warm coastal areas, for they can find no finer Festival Tree than the glorious African Flame Tree, *Spathodea speciosa*, or the enormous glossy-leaved *Rauwolfia natalensis*. Not impervious to frost, alas, that perfect specimen tree the Cape Chestnut (*Calodendrum capense*) is to my mind especially qualified for selection for planting, in appropriate parks and gardens, as a tree to commemorate any great national occasion.

Even in our pleasant South African winter there are times when flowers are scarce, so here, for the smaller garden, *Dombeya dregeana* with its winter gift of nectar for the bees will prove a garden asset . . . and from the little bee to the somewhat larger elephant we have the Portulacaria or Spekboom, the 'Elephants' Food' tree. Or perhaps you might prefer the *Kiggelaria africana* or Spekhout.

Have I missed out your own favourite indigenous tree? If so, I am not sorry for its omission may impress it all the more clearly upon your memory and strengthen your determination to plant one either now or in Festival Year.

It is not my function here to elaborate upon the methods of tree-planting and other cultural details. I would, however, urge careful consideration of the tree or trees to be planted. Make sure they are suitable to the soil and climate of your own garden, that their shape and habit of growth will fit in with your landscaping scheme and that—once planted—they will be free to grow to their full dimensions without proving either an embarrassment or, in years to come, having to submit to the indignity of lopping or even falling entirely to the axe.

To my mind our indigenous trees, and that applies to

all our indigenous flora, should be subject to very special planting, siting and other conditions when introduced to the garden or used for park-planting. In its right place it can be an abiding joy. Removed too drastically from surroundings and growing conditions to which it is accustomed, although it may consent to grow it appears to do so on sufferance as a wild bird will live, but can surely never be truly happy, in a cage.

If you are young enough (and all gardeners are young in heart) you might care to celebrate Festival Year by raising some of our indigenous trees from seed. The task is not formidable for even the most artless of gardeners, and in years to come what a thrill it will be to look upon some thriving specimen and say: 'Yes, I raised that one from a seed sown during the Festival celebrations of 1960!'

It has been my experience that trees and shrubs of all kinds germinate very well from seeds sown in beds covered by slatted laths, but I am reminded that recently the Agricultural and Forestry Officer (Mr. V. S. Gilbey) of Quthing, Basutoland, wrote me that he had experienced great success in raising the Camdeboo Stinkwood by sowing the seeds and planting seedlings on the south side of thick bushes, thus taking a tip from the natural habit of the trees to germinate under indigenous bush and slowly grow right through them. It is a method which might perhaps be practised to good effect with other of our indigenous flora.

A tree provides a natural home for a whole host of other of Nature's children: birds, small animals, reptiles, insects, and a nursery for seedlings of many kinds, a number of which are content to grow happily beneath its shade and protection. So your Festival Tree may perhaps, in time, become a little haven of various types of indigenous flora on its own, its spreading branches extending hospitality to various of our indigenous shrubs, bulbs and other plants. It conjures up a pleasant prospect and a delightful memorial to a great occasion.

Plant a Festival Tree—an indigenous tree. Seek the ear of your local Chairman of the Parks and Recreation Committee, have a word with your M.P. about it, for here is your opportunity to do something active in extending the love, knowledge and appreciation of our most noble examples of indigenous flora of all.

Origin of Cape Wild Flower Shows

By CONRAD LIGHTON

ALTHOUGH I have seen it claimed that Caledon was the first town in South Africa to hold a flower show, the fact is that Tulbagh held its first wild flower show in September 1887, five years ahead of Caledon. This I discovered by delving in old newspaper files. Tulbagh therefore appears to hold the pioneer show title of the Cape Floral Kingdom.

It is recorded that prizes of one shilling each were won by a Miss Adams and a Miss Wiggins for the best collections of Babianas and Everlasting flowers respectively. The prize money was modest, but the competition must have been keen for no fewer than 130 hand bouquets were exhibited.

Tulbagh's second show took place on Wednesday, 12 September 1888. 'Grown bold by our signal success, this plucky little village is determined to hold an exhibition worthy of the distinguished patronage vouchsafed by Lady Robinson, who has graciously signified her intention of being present, and who will come by extra special train, which is to be run for the convenience of the Government House party.' Thus wrote a Tulbagh correspondent of the Cape Town Press a few days before the show.

He pointed out that the special train for the general public would leave Cape Town at 8 a.m. and reach Tulbagh Road at 11.37. From there passengers would be conveyed to the village—a distance of three miles—in carts, and would arrive about noon 'giving them plenty of time to have a good dinner before the show is opened at 2 p.m. by Lady Robinson.

'The return train leaves Tulbagh Road at 5.30 p.m., reaching the metropolis at 9.15 p.m. Thus an opportunity seldom offered is given to come out and view these pristine parts', observed the writer, who predicted a record attendance. 'Already has intimation been received of the coming of whole families of friends and relatives; and it is expected that the railway authorities will be put to their wits' end ere the day is past', he wrote, playing up Tulbagh's second great day of flowers.

Rather ingenuously he added: 'It may be as well to mention that the object of holding our show is to get funds in aid of our public school, the sphere of which it is desirous of enlarging. It will thus be a pleasing thought to those who are present to know that not only are they

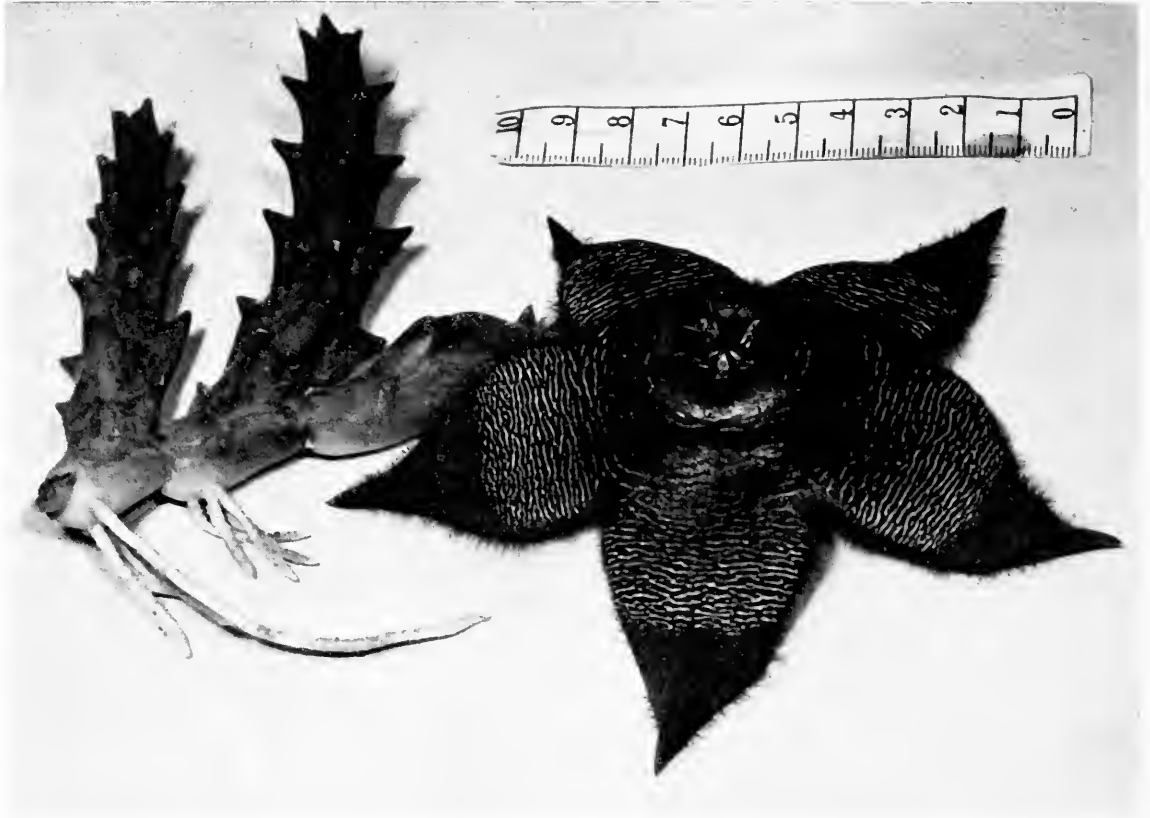
directly gratifying their own pleasure, but are directly assisting in the furtherance of a good and laudable work—that of furthering education.'

History is silent as to whether the railway authorities were put to their wits' end on show day, but we can be grateful to this unknown newspaper correspondent for his superb description of the Tulbagh valley in that springtime of 1888.

Here is his word-picture: 'The fields and mountains are gaudy to profusion in their spring habiliment, and flowers numerous as the stars in the firmament are spread about up-hill and down dale in the grass and bushes. The star-like *Ornithogalum*, in shades of white and golden yellow, are seen in numbers along the highways. The richly-tinted *Babiana* in all colours from the cream to the dark-blue and deep crimson, are ubiquitous. Numerous specimens of the delicate *Geissorhiza*, showing themselves in rich red, bright pink, white and blue, abound. *Sparaxis grandiflora*, in purple, maroon, cream-coloured, striped, and endless other styles, brush like a lovely vision on one's sight in all the low-lying levels. *Gazania* is seen in a multitude of shades. The *Lachenalia* rears its head everywhere, and is found in all colours, variegated at times to distraction. *Ixias* in white, green, purple, and spotted are found flowering in all out of the way places. Heaths in a rich galaxy adorn the mountain. *Watsonias*, in rare magnificence, appear here and there, and of the *Protea*, a copious profusion is scattered about in the stony places; and so on and on till the list of *Compositae*, *Ericaceae*, *Proteaceae*, *Iridaceae*, *Liliaceae*, etc. etc. is all but exhausted.'

With a little imagination we can visualize the rich scenes that met the gaze of the visitors as the Cape carts jogged along those last three miles to the Tulbagh show, and although we may sigh over the depletion of our flora today it is reassuring to know that the rural communities continue to reveal a great love for, and pride in, their regional flora.

The Tulbagh Wild Flower Show held in mid-September is notable for proteas of many kinds, the display of bulbous plants and interesting exhibits that may vary from a collection of twenty species of sweet-smelling orchids (among them the purple-bearded oupa-pyp-indie-bek) to a clump of Tulbagh's peacock flower, the mauve iris with peacock green 'eyes' at the centre.



[Photo: C. Lewis Ralph.]

PLATE 3
Stapelia barklyi N. E. Brown

Stapelia Barklyi N.E.Br.

AN INTERESTING REDISCOVERY

By H. HALL

STAPELIAS have undoubtedly been of interest to plant collectors from the earliest days of the occupation of the Cape. The first collector of Cape plants was a Dutch missionary from Leyden named Justus Heurnius, and one of the plants he took back to Europe was *Stapelia variegata* L. in 1639. This is the commonest *Stapelia* in cultivation today and it may still be met with in the wild state within a mile or two of Cape Town.

A few Stapeliads, or Stapelieae as they are collectively termed—there are several hundred different kinds—have not been seen again since they were recorded by the various collectors of the time, in particular some half-dozen described and figured by Francis Masson, 1772–96, these being referred to as ‘Masson’s Lost Plants’.

One of the more recent plant collectors was Sir Henry Barkly, a Governor of the Cape from 1870 to 1877, and he appears to have built up a considerable collection of Stapeliads in his garden in Cape Town during his stay here. His wife and daughter made drawings of the plants, and these, together with living material and also herbarium specimens, were sent to Kew. There, Dr. N. E. Brown published an account of Barkly’s plants in *Icones Plantarum* in 1890 and the species that bears Sir Henry Barkly’s name is the subject of this note.

I should like to digress for a moment to refer to ‘N. E. Brown’, an unforgettable name to all students of taxonomic botany, for the letters ‘N.E.Br.’ are appended to legions of plant names. One of my fondest memories of Kew is of seeing Dr. Brown on his daily journeys to the Kew Herbarium during 1930–3. As one scans through the pages of *The Stapelieae* by White and Sloane, 1937, it is possible to gain a slight impression of Brown’s contribution to our knowledge of this group of plants. ‘The total work done by Dr. Brown on behalf of the Stapeliads cannot be estimated’ is the authors’ compliment to this—in 1933—frail-looking old gentleman who joined the staff of the Royal Botanic Gardens, Kew, in 1873, retired about 1914 and continued his studies in the Kew Herbarium until his death in 1934 at the age of 84.

In November 1957, on one of my occasional wanderings in Namaqualand, I came across an unusually large concentration of *Stapelia pulvinata* Mass. and *Stapelia namaquensis* N.E.Br. growing socially in the semi-arid region near Soebatsfontein. Owing to drought no flowers were present on the latter, but I gathered small

portions from several plants because this species shows occasional flower-colour variation. Early in 1958 a flower or two matured on some stems which were very obviously something entirely different from *Stapelia namaquensis* and were eventually diagnosed by Miss W. F. Barker, of the Compton Herbarium, Kirstenbosch, as *Stapelia barklyi* N.E.Br.

So far as could be ascertained there was no herbarium material of this species in South Africa, and it is safe to assume that Barkly’s specimens sent to Kew constituted the only known record of it. Apparently never re-collected for more than half a century, *Stapelia barklyi* deserves to join the ranks of ‘Rare Plants’. There can be little doubt that it was sought after as keenly as were those figured by Masson one hundred years earlier, especially by such as Mr. N. S. Pillans, of the Bolus Herbarium, University of Cape Town, who reduced the list of Masson’s ‘Lost Plants’ to some extent during his many expeditions in the early years of the present century.

Barkly’s specimens were collected near Okiep, near Springbok, roughly sixty miles north of Soebatsfontein. The distance is not very important, for seeds of all Stapeliads are wind-borne and can, and do, travel great distances. Somewhere, then, among all those plants of *Stapelia namaquensis* and *S. pulvinata*, in their lonely surroundings in far-off Soebatsfontein, our new arrival in the botanical world lies secluded, far from the beaten track. Since, however, most of the plants from which I removed suitable portions were about 2 ft. in diameter, I shall assume our newcomer to be of similar size for the notes in *The Stapelieae* do not tell us.

The stems are 3–4 inches in height, four-angled, with conical teeth on the angles, dull green and faintly mottled with purplish flecks. The flower is carried on a 4-inch stalk and lies flat on the soil, 5 inches in diameter, purplish-brown in colour with very narrow, transverse yellow lines on the basal half of the lobes (petals), dark purple-brown near the tips. The thick, fleshy annulus and lobes are covered with soft, purple hairs. Each flower remains open for about a week and these are produced during the warmer months of the year. Even when not in flower the duller mottling, the minutely velvety stems and the more erect habit readily distinguishes this species from *Stapelia namaquensis* among which it has lain concealed for so long.

Leucadendrons in New Zealand

By W. R. STEVENS (WANGANUI, NEW ZEALAND)

IN the *R.H.S. Dictionary of Gardening*, under the heading of *Leucadendron*, it states that this genus comprises some seventy species, all confined to South Africa. It goes on further to say that the flowers are dioecious in cone-like heads, subtended by bracts, often hidden by the uppermost leaves, but of *little beauty*.

In New Zealand the genus becomes more popular every year, and in fact the demand is far ahead of supply in several species. Generally speaking, *Leucadendrons* make very satisfactory shrubs, as they present no great cultural difficulties. However, one of their main attractions is their use as cut-flowers, and several species have proved immensely popular for the winter cut-flower market.

As I write, at the end of June, our packing-shed contains over one thousand flower-heads of *L. decorum*—one thousand heads of golden goblets! Beautiful at any season, but in mid-winter—surely a gift from the Gods! Maybe our soil conditions suit this plant, because I have seen specimens in other parts of this country which do not seem to develop the vivid yellow that we get here. With us it grows vigorously up to 6 or 8 ft. and the annual pruning of the flowers induces plenty of new growth. True, it has a short flowering season—about four or five weeks—but let us be grateful for such beauty for even that long.

Leucadendron adscendens, while not so striking, possesses a charm of its own, and by growing selected forms quite a range of colour can be had. These colour forms range from creamy-white to biscuit and apricot, from browns to rusty red, and provide delightful table decorations.

We also have *L. grandiflorum*. I have yet to see a description written, even in all the books on South African flora, which does justice to this magnificent

flower. From late summer when the flower buds form with their great saucers of light rosy brown, until the winter when carmine deeply splashes the base, the shrub is sensationally beautiful. For that period alone *L. grandiflorum* would be worth growing, but at the first hint of spring warmth in July the bracts lighten, and almost overnight become a vivid yellow with edges margined red. Surely, not even the *Proteas* are more sensational.

The next to come with us is *L. strictum*. This is a shrub which is beautiful for many months of the year. The graceful willow-like foliage is softly coloured at the tips and in some forms almost rosy fawn. Towards the end of August the 6 ft. bushes are literally smothered with rich golden, almost daisy-like bracts. Exquisitely graceful, they make an ideal cut-flower and last several weeks in water. A further virtue possessed by this species is that the females quickly form attractive cones, which for most of the year are brightly flushed with red.

Finally we have *L. salignum*. We know this is quite a common species in South Africa, but, for that very reason perhaps, it is not fully appreciated. We have the side of a hill planted with this species, and the effect when the bushes come into bloom in September is brilliantly gay. Yet again in *L. salignum* we have another species which makes a perfect cut-flower. It can be used in combination with, for instance, daffodils or blue Dutch Irises with great effect, but even alone it is a home decoration of great aesthetic beauty.

Where the writer in the *R.H.S. Dictionary* obtained the idea that the coloured bracts of *Leucadendron* are hidden by the foliage I do not know, but one thing is certain: he can never have seen *Leucadendrons* growing in a sunny country.

A Coastal Forest Remnant Near Stanford, Cape Province

By HUGH COLIN TAYLOR

CLOSE to the sea near the southern tip of Africa, between the little fishing village of Gansbaai and the Uilkraal River at Strandskloof, a patch of natural forest nestles in a hollow of the hills. The main road skirts the seaward side where the storm-winds of winter and the trade-winds and fires of summer have kept the vegetation to a low scrub form. Not two miles distant are open coastal dunes which remind one of the sandy desert wastes of the Sahara. You would scarcely expect to find a forest within a hundred miles of country like this.

Yet behind the low line of hills known locally as the Baviaansfonteinberge is a moist and fertile depression. The hills subdue the storm-winds and condense the cloud of summer south-easters into mist. These factors and the deep, moist soils make forest growth possible.

The first time I saw Uilkraal Forest, some nine years ago, I could hardly believe my eyes. I found it so interesting that I spent my weekends there, seeking a solution to the problem of its origin. I found patches of scrub clearly related to the main forest, and gradually I fitted these into the picture of the whole. In the past, perhaps over two hundred years ago, the forest must have been much larger than it is today. Relicts scattered between the present forest and the village of Stanford, some eight miles northward, bear evidence of this. These relicts vary from small open patches of low scrub scarcely 6 ft. in height, which occur right up to the margin of the sand dunes at Walker's Bay, to a dense bush of some fifty acres near Die Kelders. The floristic composition of these remnant patches is related to, though simpler than, the main forest.

This vegetation has little opportunity for development, however. The bush is being relentlessly reduced in size by the burning of adjacent sweetveld, while grazing hinders regeneration of the woody plants. In the main forest, cutting of trees for firewood or poles continues unchecked, while large patches are cleared to make way

for cultivation, as the humus-rich forest soil is more fertile than the impoverished sand of the veld.

Despite this destruction I was much impressed by the high stage of development in some interior parts of the forest where succession was relatively undisturbed by man. Truc, the George-Knysna area, thanks to its well-distributed rainfall, equable climate and gentle winds, has forests of much greater stature. But the south-western coasts with their hot, dry, windy summers and cruel winter storms are generally unfavourable for all but the hardiest scrub vegetation. In contrast, the Uilkraal Forest can boast the dominance of three well-known tree species: White Pear, Hard Pear, and Camdeboo Stinkwood. Admittedly the tallest tree is only 43 ft. high, but these three species do nevertheless form a distinct local climax of great import: they show how far the succession can proceed towards true forest, even in the summer-dry Western Province, if local conditions of climate and soil are favourable. Uilkraal is manifestly a coastal forest only distantly related to the montane forests which cling tenaciously to protected kloofs and scree of Cape mountains from the Langeberg to the Cedarberg. While remnants of this mountain type still occur quite frequently in the Western Cape the coastal forest of Uilkraal is the only one of its kind west of George which is in any way worth the name of forest.

The central portion—the climax—is already sadly reduced in size: I estimate its area at twenty acres. That which remains (it is all in private ownership) must be protected—and soon. A national organization like Kirstenbosch could undertake this great task of preservation in the most effective manner. The present aim of Kirstenbosch is to create nature reserves in vegetation types in danger of disappearing—and the Uilkraal Forest is certainly a deserving case. But as funds for such work are scarce, every person with a love for our own vegetation should consider it his duty to join the Botanical Society of South Africa in order to further the work of our National Botanic Gardens.

THE BOTANICAL SOCIETY OF SOUTH AFRICA

ANNUAL REPORT FOR THE YEAR ENDED 31 DECEMBER 1958

IN presenting this, the Forty-fifth Annual Report of this Society, your Council is pleased to record that another successful year has been completed. A steady increase in membership, together with a record grant to the National Botanic Gardens of South Africa, testifying to the progress of the Society.

FINANCIAL. The Balance Sheet annexed hereto fully details the financial position of the Society which remains sound. Of particular note are the following amounts received: Subscriptions £3,494 19s. 9d. Donations £292 15s. Interest on Investments £292 12s. 10d. Making a total of £4,079 7s. 7d. Expenditure amounted to £1,116 1s. 9d., leaving a balance of £2,963 5s. 10d. which constitutes the grant to the National Botanic Gardens for the year. This exceeds by £539 3s. 7d. the amount over the previous year, and is the largest sum yet contributed. Of this, £250 was bequeathed to the Society by the late Mr. Fred van de Sandt Centlivres, for which we are most grateful.

MEMBERSHIP. 482 new members were welcomed during the year. Resignations and deaths totalled 59, and 220 members who were two or more years overdue with their subscriptions were struck off. Total membership now stands at 3,149.

RETIREMENT OF CHAIRMAN. It was sincerely regretted that owing to failing health, Mr. C. J. Sibbett, Chairman of the Council since 1943, did not stand for re-election to the Chair. Very warm tributes were paid to Mr. Sibbett by Council not only for his work in respect of the Botanical Society of which he was a founder member, but also on account of his great public work over the years. As a tribute to the regard held for Mr. Sibbett he was elected an Honorary Life Member of the Society. Mr. Milton Clough, a long-standing member of the Society, was elected to succeed Mr. Sibbett as Chairman at the meeting of Council held on 15th April.

GOLDEN JUBILEE OF THE BOTANICAL SOCIETY, 1963. As detailed in the current issue of the Society's annual Journal, plans are already being made to mark the Golden Jubilee of the Society and the Gardens in 1963.

The appointed Committee meets regularly for discussion and action.

BOTANICAL SOCIETY'S REPRESENTATIVES ON THE BOARD OF TRUSTEES OF THE NATIONAL BOTANIC GARDENS OF SOUTH AFRICA. Mr. Dudley R. D'Ewes and Mr. Milton Clough were re-elected for a further period of three years. Mr. J. S. Linley and Mr. S. Macpherson were re-elected as alternates.

RETIREMENT OF CURATOR, KAROO GARDEN, WORCESTER. The Council of the Society was represented at a farewell function in Worcester, to mark the retirement of Mr. J. Thudichum in December.

ESTABLISHMENT OF NATURE RESERVES. The Council, on behalf of the Botanical Society, has interested itself in, and supported moves to further the establishment of, Nature Reserves not only in the Cape Province, but also farther afield. An area of Paarl Mountain, the Saltpan at Noordhoek, and Melville Koppies, Johannesburg, have received moral support. This support was also given towards the famous Tresco Abbey Gardens in Cornwall, which, owing to heavy taxation, are in danger of closing down.

'WILD FLOWERS OF THE CAPE OF GOOD HOPE.' Only 3,500 copies of this work remain unsold. Sales during the year totalled £505 6s. 4d. An amount of £2,275 has now been transferred to the Trustees of the National Botanic Gardens in accordance with our Constitution. This figure represents surplus cash in respect of sales of the book.

SEED DISTRIBUTION. 18,314 packets of seeds were distributed by the Gardens to members during the year.

WILD FLOWER SHOW, 4TH AND 5TH OCTOBER. We were honoured by His Excellency, the Governor-General of the Union, Dr. the Hon. E. G. Jansen, who opened this Show and stayed to lunch. Despite unfavourable weather the Show was very successful. The exhibits were of a higher standard than formerly and the results were most encouraging. Two new floating trophies were presented for this Show. One by Mr. and Mrs. Frank Connock for the Most Noteworthy Exhibit, which was won by Mrs. J. S. Linley, and one by Mr. B. L. Chambers,

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

a New Zealand member, for the Best Exhibit in the Children's Classes. This was won by Miss Brenda Horwood.

JOURNAL OF THE BOTANICAL SOCIETY, PART XLIV, 1958. This was published during the year. Cordial thanks are here recorded to all contributors to its pages, and to Professor H. B. Rycroft, the Editor.

MEETINGS OF THE SOCIETY. The following were held:

12th January. Visit to Miss K. Murray's Garden, Elgin.

18th February. 'Cape Wild Flowers in the Transvaal.' Illustrated talk by Mrs. Sima Eliovson.

25th March. Annual General Meeting, followed by 'Planning a Wild Flower Garden' Talk by Dr. G. J. Lewis and Mr. A. J. A. Simpson.

1st May. Grahamstown. 'South African Wild Flowers.' Illustrated talk by Professor H. B. Rycroft.

27th May. 'The Development of Parks and Gardens in the O.F.S. Goldfields.' Talk by Mr. G. M. L. Feinauer.

26th August. Film Evening. Ciné Films by Mr. K. F. Howes-Howell.

6th September. Annual Visit to the Karoo Garden, Worcester.

20th September. Visit to 'Bloem Erf', Stellenbosch: Mr. and Mrs. L. Richfield.

4th October. Annual Gathering of Members, Kirstenbosch. Wild Flower Show.

5th October. Continuation of Wild Flower Show.

15th November. Visit to the garden of Mr. and Mrs. Lancelot Ussher, Newlands.

ELECTION OF OFFICE-BEARERS. At the Annual General Meeting of the Society held on 25th March, the following were elected:

President: Mr. Dudley R. D'Ewes.

Vice-Presidents: Mr. C. J. Sibbett, Professor R. H. Compton, Professor H. B. Rycroft.

Council:

Mr. W. R. Baylis	Mr. J. S. Linley
Dr. G. J. Broekhuysen	Dr. C. A. Lückhoff
Mr. M. Clough	Mr. S. Macpherson
Professor W. E. Isaac	Miss K. Murray
Dr. W. P. U. Jackson	Miss E. L. Stephens
Miss M. E. Johns	Mr. M. F. Stern
Miss G. J. Lewis	Mr. A. J. A. Simpson
Dr. J. S. Griffiths	

Mr. Milton Clough was elected to the Chair at the first meeting of the Council.

THANKS. The Council of the Botanical Society of South Africa records its sincere appreciation in respect of all meetings held during the year. Special thanks are due to Miss K. Murray, and to Mr. and Mrs. Lancelot Ussher, who entertained over 100 guests to tea in their lovely gardens. Also to Mr. and Mrs. L. Richfield for our enjoyable visit to 'Bloem Erf' Nursery and invitation to tea. We are grateful to all speakers and others who gave their services in any way, and in particular to Mr. F. P. Chapman, for making and donating all Wild Flower Show posters. We are indebted to the staff of Kirstenbosch for judging the exhibits, and to Mrs. Middlemost for catering at the Annual Gathering, also to Mr. and Mrs. Fall, licensees of the Kirstenbosch Tea House, for luncheon arrangements at the Wild Flower Show. Appreciation is also conveyed to the daily Press and to the South African Broadcasting Corporation for its ready co-operation at all times, and also to the Cape Provincial Administration for the use of its rooms for meetings of Council during the year.

MILTON CLOUGH

Chairman

(MRS.) W. N. HALL

Hon. Secretary/Treasurer

Wild Flowers Protection Section Committee

ANNUAL REPORT FOR THE YEAR ENDED 31 DECEMBER 1958

Annual Report of the Wild Flowers Protection Section Committee, Botanical Society of South Africa, for the year ended 31 December 1958.

There were four meetings of the Committee.

FINANCIAL. Subscriptions received amounted to £327 13s. 6d. Cape Provincial Administration Grant £150. Interest on Investments £45 8s. 8d. Wild Flower Show surplus £11 8s. 10d. Making a total of £534 11s. Expenditure was £354 2s. 10d. Assets at the year end: Fixed Deposits £727 15s. Cash in the Bank £628 5s. Cash in hand £2 2s. 4d. Value of film equipment £292 13s.

WILD FLOWER INSPECTION REPORTS. Our appointed officer, Mr. H. D. W. Meyer, has again been very active in tracking down offenders against the Ordinances. His reports show a general decrease in all cases. During the year 48 offenders were brought before the courts; of these, 42 were convicted. There were 60 offenders in 1957. An amount of £67 10s. was paid into the courts in fines during the year, as against £79 in 1957. As always, our policy continues to be to educate rather than prosecute. Generally speaking, the illegal sale of wild flowers is under control. Some offenders are, however, still active and attention will continue to be directed towards these. Mr. Meyer, being without transport, cannot travel as far afield as he would like, and we are grateful that he has been invited by officials of the Cape Provincial Administration to accompany them on rounds of inspection from time to time.

ADVISORY COMMITTEE FOR NATURE CONSERVATION MEETING, BREDASDORP. Professor Rycroft represented the Wild Flowers Protection Committee at this meeting in April. Some of the recommendations submitted on behalf of the Section were: 1. The registration of all sellers of unprotected wild flowers, in order that a better check could be kept of the sales of wild flowers. 2. The inclusion of *Protea mellifera* and *P. pulchella* on the protected list. Owing to overpicking, these two species, particularly the latter, were being completely exterminated. Representation had also been made to the

Department of Agriculture suggesting a reduction in the annual registration fee of £7 10s. to the Department for registered nurserymen. A modification in the fee had resulted.

CAPE FLATS FLORA RESERVE. Plans are going ahead for the fencing of this area which is under the control of the National Botanic Gardens. It is possible that the Wild Flowers Protection Section will contribute towards the cost of fencing.

CONTROL OF ALIEN VEGETATION. A Sub-committee of the Wild Flowers Protection Section was inaugurated on 19th August. This Committee with Professor H. B. Rycroft, Hon. Chairman, and Mr. A. J. A. Simpson, Chairman, took over the duties of the now defunct Committee for the Control of Exotic Vegetation in the South-western Cape. A grant of £50 was authorized from Wild Flower Protection funds towards the cost of purchasing tools, etc. Several 'wattle hacks' have already been organized. Areas at Kirstenbosch and the Cape Flats Flora Reserve being cleared. A campaign is in progress to interest more volunteers, details of which will appear in the press in due course.

OFFICE BEARERS. The following were elected:

Miss M. E. Johns	Mr. H. D. W. Meyer
Mr. V. Karg	Mr. S. Macpherson
Mr. J. S. Linley	Professor H. B. Rycroft
Dr. C. A. Lückhoff	Mr. A. J. A. Simpson
Miss K. Murray	

Professor Rycroft was re-elected to the Chair at the first meeting of the Committee.

THANKS. To all those who have interested themselves in the work of the Section we say thank you. Sincere appreciation is also accorded to the daily press for its continued support of, and interest in, our activities during the year.

H. B. RYCROFT
Chairman

(MRS.) W. N. HALL
Hon. Secretary/Treasurer

THE BOTANICAL SOCIETY OF SOUTH AFRICA

	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
Life Membership Fund:							Cape of Good Hope Savings Bank:						
Balance 1/1/1958	2,839	9	3				Savings Account No. 52773 @ 4% p.a.			997	9	6	
Add amount received during 1958 ..	155	0	0				Post Office Savings Bank:						
				2,994	9	3	Savings Account No. 55803 @ 3% p.a.			98	9	6	
Subscriptions Paid in Advance ..				317	12	0	United Building Society:						
Dr. Bernard Price Bequest Fund ..				827	10	0	Fixed Deposit C.T.F. 10397 with						
							accrued interest @ 5% p.a. ..	724	6	10			
							Savings Account No. 536 @ 3½% p.a.	1,467	6	3			
National Botanic Gardens:											2,191	13	1
Surplus for year	2,963	5	10				S.A. Permanent Building Society:						
							Fixed Deposit F.88649 with accrued						
							interest @ 5% p.a.	588	17	8			
							Fixed Deposit F.89824 with accrued						
							interest @ 5% p.a.	1,082	9	6			
											1,671	7	2
							Cash:						
							Current Account at Standard Bank of						
							S.A. Ltd.	1,121	14	2			
							On hand	2	14	6			
								£1,124	8	8			
							Less Liabilities	15	15	0			
											1,108	13	8
							Miscellaneous Assets:						
							Amount due from Wild Flower						
							Protection Section				16	7	8
							Dr. Bernard Price Bequest—Invest-						
							ment Fund:						
							United Building Society—Fixed						
							Deposit C.T.C. 13133 with accrued						
							interest @ 5% p.a.	401	0	11			
							Office extensions	617	15	7			
											1,018	16	6
											£7,102	17	1
Wild Flower Protection Section:							Wild Flower Protection Section:						
Balance as at 1/1/1958	1,453	19	6				S.A.P. Building Society—Fixed						
Grant from Provincial Administration	150	0	0				Deposit F.88150 with accrued						
Subscriptions—Ordinary—received							interest @ 5% p.a.	366	11	3			
during 1958	327	13	6				S.A.P. Building Society—Fixed						
Interest received during 1958 ..	45	8	8				Deposit F.87673 with accrued						
Wild Flower Show surplus	11	8	10				interest @ 5% p.a.	167	8	3			
							S.A.P. Building Society—Fixed						
							Deposit F.87690 with accrued						
							interest @ 5% p.a.	193	15	6			
							Cash at Standard Bank of S.A., Ltd.	628	5	0			
							Cash on hand	2	2	4			
							Equipment—at cost less depreciation:						
							Film Projector, Screen,						
							etc., at cost	£401	4	0			

R. M. JOUBERT & CO.
Chartered Accountants (S.A.)
Auditors

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INCOME AND EXPENDITURE ACCOUNT for the Twelve Months ended 31 DECEMBER 1958

[illegible]

PUBLICATIONS ON SALE AT KIRSTENBOSCH

The following may be obtained by application, enclosing payment, to The Hon. Secretary, Botanical Society Kirstenbosch, Newlands, C.P., South Africa. Prices include postage.

'Plants of Land and Sea'; W. E. Isaac	6d.
'The Genus <i>Oxalis</i> in South Africa'; T. M. Salter. (355 pages, 10 plates, 73 text-figures.)	35s.
'The Genus <i>Muraltia</i> '; M. R. Levyns	35s.
'The Species of <i>Oxalis</i> occurring in the Cape Peninsula and how to distinguish them'; T. M. Salter	6d.
'General Hints on Raising Indigenous Plants from Seed'; H. F. Werner	6d.
'The Wilds, Johannesburg'; Miss G. Edwards	6d.
'A Tip for Horticultural Societies'; Dr. N. R. Smuts	6d.
'The Cultivation of <i>Buchu</i> '; H. F. Werner	6d.
'Three Hundred Years of Trees'; R. H. Compton	6d.
'South African Proteaceae and their Cultivation'; H. F. Werner	6d.
'Progress in the Study of the Silver Tree Disease'; D. Olivier	6d.
' <i>Pelargonium</i> —A South African Contribution to World Gardens'; F. M. Leighton ..	6d.
'The Propagation of Succulents from Seeds and Cuttings'; H. Hall	6d.
'Growing <i>Protaceae</i> in the Summer-rainfall Area'; M. M. Vogts	6d.
'Seaweeds'; W. E. Isaac	6d.
'Some South African Biennials and near-Biennials and their cultivation'; H. F. Werner ..	6d.
'Some South African Herbaceous Perennials and their Cultivation'; H. F. Werner ..	6d.
'Plant Names and their Origin'; M. R. Levyns	6d.
'Propagation and Cultivation of <i>Proteas</i> and <i>Heaths</i> '; H. F. Werner	6d.
'Notes on some rare <i>Stapelias</i> from Namaqualand'; H. Hall	6d.
'Birds of the National Botanic Gardens of South Africa'	1s.
' <i>Gasteria</i> —A Problem Genus of South African Succulent Plants	1s.
Annual Reports of the National Botanic Gardens, 1913-58, each year	3d.
Reprints available of articles published in the 'Journal of South African Botany', on inquiry, each	6d.
'The Journal of South African Botany'; Vols. I-XXV, 1935-58, each volume in four quarterly parts; per volume 30s., per part 10s. 6d. (To members of the Botanical Society 25s. and 8s. 6d. respectively.) Back volumes at price of publication.	

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

JOURNAL OF THE BOTANICAL SOCIETY: BACK NUMBERS

The following Parts are obtainable at the prices shown. The principal contents are mentioned below: each part also contains full-size Plates, News and Notes, Reports, etc.

Price to Members of the Botanical Society 1/6; to non-Members 2/6

Part	XXI.	Aloe Marlothii: Some Forms and Hybrids. Lawn Grasses on Trial at Kirstenbosch. How to form a Garden Library. South African Conifers for Garden Use. From New York to Kirstenbosch and Back.	G. W. Reynolds. J. W. Mathews. L. B. Creasey. J. W. Mathews. S. V. Coombs.
„	XXII.	South African Succulents at Kew. An Old Cape Frontier. Our Wild Flowers and Their Protection.	Sir Arthur Hill. E. A. Walker. F. Guthrie.
„	XXIII.	Economic Plants at Kirstenbosch. Garden Gladioli—Their Origin and History. Growing Plants from Seeds. Letters from an Early Cape Botanist.	F. W. Thorns. L. B. Creasey. S. G. Fiedler. M. C. Karsten.
„	XXVI.	The South African Genera of the Haemodoraceae. Humus and Soil Fertility. Mountains and Their Vegetation.	W. F. Barker. F. W. Thorns. R. H. Compton.
„	XXVII.	Weeds: The 'New' Cape Flora. Drug Plants.	R. S. Adamson. F. W. Thorns.
„	XXVIII.	The Herbarium of the National Botanic Gardens, Kirstenbosch. Nature Study in the Forests at Kirstenbosch.	R. H. Compton. M. E. Johns.
„	XXXI.	Cape Annuals for the Garden. A Plea for South African Trees.	F. W. Thorns. D. K. D'Ewes.
„	XL.	Seaweeds. An Australian Plant Propagator looks to South Africa for new plants for Australian Gardens. Growing Proteaceae in the Summer-rainfall Area. Some South African Biennials and near-Biennials and their Cultivation. Some impressions and reflections of a Plant Collector.	W. E. Isaac. T. A. Browne. M. M. Vogts. H. F. Werner. T. P. Stokoe.
„	XLIII.	Propagation and Cultivation of Heaths. Notes on some rare Stapelias from Namaqualand. The Cultivation of some Ericas in New Zealand.	H. F. Werner. H. Hall. W. R. Stevens.
„	XLIV.	Birds of the National Botanic Gardens of South Africa Gasteria—A Problem Genus of South African Succulent Plants.	G. J. Broekhuysen. E. A. C. L. E. Schelpe.

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

MEMBERS OF THE BOTANICAL SOCIETY

AS AT 31 AUGUST 1959

(LIFE MEMBERS DENOTED IN CAPITAL LETTERS)

In case of any inaccuracy in the following list it is requested that notification should be made to the Hon. Secretary, Botanical Society of South Africa, Kirstenbosch, Newlands, C.P.

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THE BOTANIC SOCIETY OF NATAL

By J. S. BEARD

President of the Society

The Pietermaritzburg Botanic Society, which later became the Botanic Society of Natal, was founded by a group of prominent local citizens about the year 1870 with these objects:

1. To obtain by grant, lease, purchase or otherwise suitable lands in the vicinity of Pietermaritzburg for the purpose of propagating trees, shrubs, roots and seeds for distribution throughout the Colony; and in furtherance of this object, the collection of indigenous plants and seeds for exchange with kindred societies abroad.
2. For experimenting on the growth of vegetable products of economic value, and considered capable of remunerative cultivation in the upper and midland districts of the Colony.
3. For the accumulation and preservation of trees, shrubs, flowers, etc., of value, beauty or rarity.

We have no record of the actual foundation of the Society, but we know that in 1874 Town Lands to the extent of 110 acres were transferred to the Society in trust by the Town Council, and a start was made on laying out the Society's Botanic Garden. It will be observed from the 'Objects' above that the accent was on introduction of plant species and the export of local ones in exchange, which was in accord with the nineteenth century concept of the function of a botanic garden. It was a time when a grand exchange of the world's plant resources was in progress and this approach was particularly suited to the young Colony of Natal, as yet poor in economic and ornamental plants. The introductions were planted out in the Society's garden and those which prospered grew up to form a collection of beauty. Finance was derived mainly from a Natal Government grant of £350 a year, a Town Council grant of £5 (yes, £5) and members' subscriptions of one guinea. Even when we remember that the purchasing power of these sums was the equivalent of about four times as much in present-day currency, the income was pitifully small and it is remarkable how much was none the less achieved. We owe an enormous debt to the devotion of successive curators. At the same time the Natal Government was more directly sponsoring botanical work in Durban where the 'Natal Botanic Gardens' were run as a state institution. Here, under the directorship of the late Dr. Medley Wood, and long before the inauguration of the Natal University College, the foundations of

botany in the Colony were well and truly laid. In addition to effecting plant introductions as in the Pietermaritzburg gardens, Medley Wood established a herbarium and issued regular publications on Natal plants. Unfortunately this institution was disestablished at the time of Union. The Botanic Gardens were handed over to the Durban City Council and are now one of the City parks, while the herbarium was embodied in a Botanic Station run by the Division of Botany and ceased to play a leading role in the Province. The Natal Provincial Administration after Union continued the grant to the Pietermaritzburg Botanic Society but interest waned and even today the Society does not receive as much in terms of purchasing power as it did in 1874.

In the course of the Society's early work 43 acres of the land in the Zwartkop valley were laid out as gardens. The remainder which lies on a steep hillside is still undeveloped. The cultivated area consists of flat, deep and fertile land along the Dorp Spruit with a rainfall of 38 in. a year which has particularly favoured the growth of trees and shrubs. Azaleas more or less run wild and are the chief glory of the Gardens, but the number of large and venerable trees is the most noteworthy feature. South Africa is a country where, by and large, trees do not do well, and it is considered that Pietermaritzburg has the finest collection of trees of any public garden in the Union. One of the most famous components is the avenue of plane trees planted on 8 November 1908 at the suggestion of Sir Matthew Nathan, last Governor of Natal. On 8 November 1958 a monument was unveiled in the avenue by Dr. W. J. O'Brien, sole survivor of the 1908 committee, himself in his ninety-eighth year and with a record of exactly sixty years' unbroken service on the committee of the Society. Also present was Mr. W. E. Marriott who was curator in 1908 and planted the trees, and is now a committee member. It is with such devotion that the heritage of the past has been tended.

The era of plant introduction has largely passed: what remains is today in the hands of the trade. Our role for the future should be to work along the same lines as Kirstenbosch and contribute to the conservation of our local flora by introducing it into cultivation. Little or no work of this kind has ever yet been done on the flora of the eastern seaboard. We must of course preserve our beautiful old garden and continue it, but there is scope for the parallel development of indigenous flora work.

They're MILD!

They're SMOOTH!

They're GOLD FLAKE!

1/11 for 20



**THEY'RE
A NATURAL
FIRST
CHOICE!**



THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

THE BOTANICAL SOCIETY OF SOUTH AFRICA

OBJECTS:

1. The promotion of the interests of the National Botanic Gardens of South Africa established under the Trustees of the National Botanic Gardens of South Africa.
2. The preservation of the native flora of South Africa. The Society therefore endeavours:
 - (a) To encourage the people of South Africa and other countries in the progress and development of the National Botanic Gardens of South Africa at Kirstenbosch, and any other Garden that may be established by the Trustees of the said National Botanic Gardens of South Africa.
 - (b) To augment the Government and other grants towards developing, improving and maintaining the National Botanic Gardens of South Africa at Kirstenbosch and any Garden referred to in the preceding subsection.
 - (c) To organize shows at which may be displayed the results of botanical experiments of cultural skill in improving the different varieties of South African flora.
 - (d) To enlighten and instruct on botanical subjects by means of meetings, lectures and conferences and by the distribution of literature.
 - (e) To promote the preservation of the native flora of South Africa, to encourage public interest in it, and to co-operate with the Public Authorities and others in the attainment of this object.

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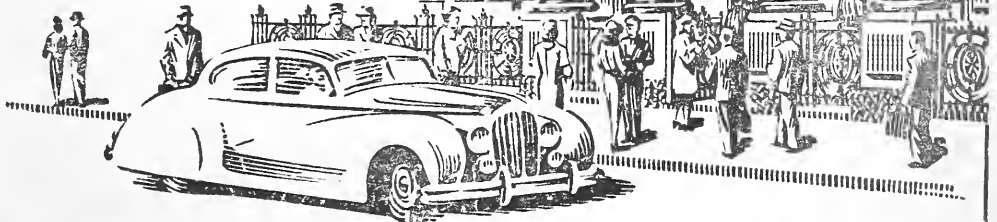
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Members who wish to support the Wild Flower Protection Section of the Society may give an annual subscription of 5s. per annum in addition to the subscription for the class to which they belong. Those wishing to become Members of the Society are invited to communicate with the Hon. Secretary, Mrs. W. N. HALL, Botanical Society of South Africa, Kirstenbosch, Newlands, C.P.

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OTANICAL SOCIETY

OF SOUTH AFRICA

Edited by H. B. RYCROFT, M.Sc.,
B.Sc.(For.), Ph.D., Director of the National
Botanic Gardens, Harold Pearson Professor of
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Part XLVI

1960



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Kirstenbosch in spring: ursinias, venidium and euryops make a golden carpet. A study by J. P. de Smidt.

The Journal of the Botanical Society of South Africa

EDITED BY H. B. RYCROFT

PART XLVI

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- PLATE 1. Frontispiece. Kirstenbosch in Spring. (Photo: J. P. de Smidt)
PLATE 2. The grave at Kirstenbosch of Harold Pearson. (Photo: Dudley D'Ewes)
PLATE 3. Harold Porter.

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News and Notes

DIRECTOR'S VISIT OVERSEAS

During the preparation of these News and Notes, Professor H. B. Rycroft, Director of the National Botanic Gardens of South Africa, was notified that he had been awarded a Royal Society and Nuffield Foundation Commonwealth Bursary to continue his studies on the Proteas of South Africa. Much of his time will be spent in the Herbarium at Kew and the British Museum; he will also visit as many Botanic Gardens as possible in the hope of bringing new ideas to Kirstenbosch. Through the generosity of the Cape Tercentenary Foundation it will be possible to visit Herbaria and Botanic Gardens in Sweden, Holland, Germany, France and Switzerland. We are sure that all members of the Botanical Society will wish Professor Rycroft a happy and successful trip.

* * *

WELCOME TO THE NEW CURATOR, KIRSTENBOSCH

Mr. J. A. Marais took over as Curator in place of Mr. Werner in the beginning of the year. Members who have attended meetings at Kirstenbosch have met Mr. Marais and his charming wife, and have been much impressed by his obvious enthusiasm for the Gardens. Mr. Marais has had forestry as well as horticultural experience, which will stand him in good stead in the fire-fighting that has become a regular part of the Gardens staff's summer duties. We wish Mr. and Mrs. Marais a long and happy sojourn in the most important garden in the sub-continent!

* * *

OFFICIAL EMBLEM OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

During 1957, Mr. J. S. Linley, a Member of the Council, suggested that the Society should adopt its own appropriate emblem. This suggestion was warmly applauded by Council in respect of which much discussion and selection has taken place. This culminated in the design of Captain M. F. Stern, also a Member of the Council, being finally accepted. It depicts a bloom of *Protea neriifolia* with a map of Southern Africa in the background, and in due course will appear on the Society's stationery, etc.

WILD FLOWER SHOW, 1960

The annual Wild Flower Show will be held in the Lecture Hall, Kirstenbosch, on Saturday, 24 September, and will be opened by His Honour, The Administrator of the Cape Province, Mr. J. N. Malan, at 12 noon. As an experiment, the Show is being held independently of the annual gathering of members this year. This alteration from normal procedure is in response to requests received from members anxious to exhibit more varieties of bulbous plants which have usually flowered too early for previous Shows. We are, therefore, hoping for a large number of entries in this section this year, so please do not disappoint us. Study your Schedule carefully, copy of which is enclosed in this Journal, and make up your mind to enter as many exhibits as possible. If every member were to enter just one exhibit, what a wonderful Show we should have!

* * *

CAPE FLORAL KINGDOM

Conrad Lighton, whom we are very glad to have as a new Council Member of the Botanical Society, has recently written a book entitled *Cape Floral Kingdom*. The story of Kirstenbosch is to be found in most of its chapters as well as a very detailed account of the history of the wild-flower shows of the Cape. Furthermore, the author gives entertaining accounts of the early plant-collectors in this country. This book is beautifully illustrated with several colour plates and numerous black and white illustrations. One of the colour plates is reproduced as the frontispiece in this Journal. This is a book for every lover of our wild flowers. Published by Juta & Co., price 27s. 6d. An order form is enclosed with this Journal.

* * *

FORTHCOMING BOOK ON WILD FLOWERS

Wild Flowers of the Transvaal, shortly to be published, is the culmination of a lifelong ambition by the botanical artist Cythna Letty, and will contain 176 full-page illustrations in colour depicting nearly 400 of the more colourful species of the veld. The text will be in popular terms by botanists of the National Herbarium, Pretoria, Dr. R. A. Dyer, Miss I. C. Verdoorn, and Dr. L. E. Codd. Dr. L. Bolus, authority on the Cape

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wild flowers and for many years Curator of the Bolus Herbarium, is contributing the foreword.

Since the original illustrations are of such perfection the best possible reproductions are being obtained, thus the plates will be reproduced by six-colour lithographic process on quality cartridge paper. A *de luxe* edition of 1,000 copies is to be published, the minimum subscription for this edition being £10 10s. 0d. Should the response to this edition be satisfactory, it is possible that a standard edition will follow. An illustrated brochure and order form is enclosed with this Journal.

* * *

NEW GARDENING BOOK

We are happy to announce another book from the pen of Sima Eliovson, whose earlier works *Flowering Trees and Shrubs for South African Gardens* and *Flowers of South Africa for the Garden* have proved so popular.

Her new book, *The Complete Gardening Book for Southern Africa*, promises to be a worthy successor to her earlier works, and will, therefore, be full of interest and a must to all garden lovers. This book, due to be published in October 1960, will be fully illustrated in colour and half-tone. Price 57s. 6d. from all booksellers.

Of particular interest is the news that a special *de luxe* edition of *The Complete Gardening Book for Southern Africa* will be published. This will be bound in full leather and will be limited to 100 copies. Priced £7 7s. 0d., you will be well advised to reserve your copy without delay, either from your bookseller or direct from the publisher, Howard Timmins, 109, Long Street, Cape Town.

* * *

HAROLD PORTER BOTANIC RESERVE, BETTY'S BAY

In terms of the will of our late Council Member, Mr. Harold Porter, an area of 400 acres at Betty's Bay has been placed under the control of Kirstenbosch. This is a most exciting piece of country which abounds in Ericas and many other species characteristic of the south-western Cape.

Our sincerest thanks go to Mrs. Olive M. Porter and her son, Mr. Arthur Porter, who have shown such a real interest in the Reserve and who have contributed generously to the maintenance of the area. Negotiations initiated by Mr. Arthur Porter are now taking place for the acquisition of Disa Kloof above the 'Cascades' as

an addition to the Harold Porter Botanic Reserve. This is a magnificent area with a long stretch of open water, large trees and, of course, an abundance of the beautiful Red Disa in the heart of summer.

Mr. W. Tijmens was appointed Curator of the Reserve in February of this year and despite labour problems he is accomplishing very fine work. We wish him every success and trust that under his guidance this Reserve will be a fitting memorial to Harold Porter who bequeathed it to us.

* * *

NEW WILD-FLOWER RESERVES

It has been most encouraging to know that various municipalities, local authorities, clubs, societies and associations have been interested in the establishment of wild-flower reserves in their respective areas.

The reserve at Montagu, organized mainly by Miss Babsie van Zyl and Mrs. Justice Basson, is now well known, Hermanus has commenced its Fernkloof Reserve and Ceres, Durbanville and Somerset West are contemplating the setting aside of wild-flower reserves.

* * *

DEVIATION OF RHODES DRIVE

After many years of negotiation with various local authorities and Government Departments it was agreed that the Divisional Council of the Cape would make plans to deviate Rhodes Drive where it passed through Kirstenbosch. This means that the main road which now runs across the Kirstenbosch estate will be rerouted to follow the eastern border of our property. It will be of tremendous advantage to us mainly because the Gardens will not be bisected by a main road.

* * *

CONTRIBUTORS TO OUR JOURNAL

We are very grateful indeed to all those who have contributed to the pages of our Journal from time to time. We welcome articles from members and would be pleased to have more submitted. We are particularly pleased this year to welcome amongst other contributors, Professor R. H. Compton, who writes a most interesting account of his work in Swaziland.

Professor Compton was Director of the National Botanic Gardens of South Africa from 1916-53. He retired to Swaziland where, among other activities, he is continuing his botanical studies.

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TERCENTENARY CELEBRATION OF PLANTING OF WILD ALMOND HEDGE

On 30 April 1960, three hundred years after Jan van Riebeeck, Governor of the Cape, had established the first real boundary of the young South African Colony, a meeting was arranged at which various people were invited to plant saplings of the Wild Almond (*Brabeium stellatifolium*, a member of the Protea family indigenous only in the western Cape) to fill in gaps which had occurred in the old hedge. Plantings were made by Mr. W. Fehr and Professor M. R. Drennan on behalf of the Historical Monuments Commission, Mr. Milton Clough—Botanical Society of South Africa, Professor H. B. Rycroft—National Botanic Gardens of South Africa, Mr. G. S. Malan—Divisional Council of the Cape, Miss M. E. Johns—Children of South Africa, Mr. E. H. Nellmapius—Trustees of the National Botanic Gardens and Mr. Stuart Macpherson—Control of Alien Vegetation Committee.

* * *

NEW MEMBERS

In an effort to save expense and space, it has been decided not to publish the names of new members each year in the Journal. The full list of members will, however, continue to be published every five years.

* * *

MEMBER'S SUCCESS WITH KIRSTENBOSCH SEEDS

It is always very interesting to receive accounts, particularly from our distant members, telling of their success

with our seeds. Many letters are received and we are only too sorry that it is not always possible to reply to everyone. One of our members, Mr. T. C. L. Howard, of Salisbury, Southern Rhodesia, sent a delightful picture of his garden in which no fewer than twenty varieties of Proteas and Leucospermum as well as Ericas and other wild flowers grow to perfection. He is particularly proud of a small Caledon Heath which has flowered twice a year for the last four years.

* * *

OBITUARY

We have to record with very sincere regret the deaths of several of our members during the past year, including Dr. W. Duncan Baxter, who died on 7 January 1960. Dr. Baxter was a foundation member of the Botanical Society and its President from 1936-56. He was also a foundation member of the Board of Trustees of the National Botanic Gardens of South Africa. He was very largely responsible for the creation of the Gardens at Kirstenbosch and until his death devoted much of his time to the welfare of the Gardens and the Society. Dr. Baxter was Chairman of the Board of Trustees from 1917 to 1957 and in terms of his will the Gardens have benefited to the extent of £1,000 for the construction of a suitable entrance gate to Kirstenbosch after the present Rhodes Drive has been deviated.

Dr. Baxter held a personal interest in our endeavours to have the road deviated and before his death he expressed satisfaction that final arrangements had been made.

Three Centuries of Veld-Fires

By DUDLEY D'EWES

EARLY next year there occurs a tercentenary which we should celebrate not with the flags and bugles and torches (certainly not the torches) of recent jubilees and centenaries and tercentenaries, but with sackcloth and ashes. Chiefly ashes: because on 5 February 1661 there occurred the first recorded veld-fire in the Cape which resulted from a camp-fire that got out of control.

On 30 January of that year one of the many expeditions sent out by van Riebeeck to make contact with the Namaquas left the settlement under the leadership of Pieter Cruijthoff, with Pieter van Meerhof as second-in-command. Van Meerhof kept the journal of the expedition. On 5 February he wrote:

'I came upon a herd of hartebeest, four of which I wounded but managed to get hold of only one. We loaded the carcass on one of our oxen and travelled on as far as the Great Berg River, which, praise God, we forded without difficulty. There we rested, after a day's march of three miles. While we were busy cutting up the hartebeest, some of the men were making a fire to cook it, but the undergrowth and dry trees caught on fire, so that it was as much as we could do to snatch our powder and sacks of biscuit out of the way. Thus were our lives gravely imperilled, for had a spark fallen on the powder we would all have been blown up. The fire practically surrounded us.'

It is not likely that the Meerhof fire did any permanent damage to the Cape flora. It was pretty well established by Dr. C. L. Wicht in the *Report of the Committee on the Preservation of the Vegetation of the South West Cape* (Royal Society of S.A., 1945) that our flora has been living with fire for centuries; that, in fact, fire was probably one of the environmental factors that have made the flora what it is.

Deplorable as the Meerhof carelessness was, and deplorable as similar carelessness has been ever since, the results were not as tragic as many people might think—including those of my journalistic colleagues who are so quick, when there is a fire, to write such nonsense as that 'many acres of veld were totally des-

troyed'. I have even seen it recorded that a mountain was 'totally destroyed'!

The regenerative capacity of our flora is amazing.

Or rather I should say the regenerative power of our flora was amazing until a deeply sinister new factor was added during the last century, in the form of several species of alien vegetation. For hundreds of thousands of years our flora has survived fire after fire, coming up smiling from the roots or from seed after every conflagration. But during the past century, and especially during the past fifty years, fire has encouraged the spread of hakea and acacia species, as well as the cluster pine.

It does this in three ways: first, it gives them a clear seed-bed free of competition, and since many of them grow fast in the seedling stage, they can get off to a flying start. Secondly, it prepares the hard-coated seeds of the wattles for germination and opens up the fruits of both hakea and pine, causing the neighbourhood to be drenched with seed.

The third way deserves a paragraph to itself because few people know about it, or realize how important it is. Fire destroys the little veld rodents that feed on seeds, including the seeds of hakea and cluster pine. It took the seeing eye and the persuasive tongue of Mr. W. Hazell at Vergelegen to convince me of this. There is no doubt whatever that hakea and cluster pines both germinate abundantly after fires, whereas you can search and search in hakea spinneys for signs of natural regeneration and find none, or almost none. But what you will find is many fruits with the characteristic holes gnawed into them by rodents seeking food. (My wife and I have even found a cluster pine in the Hawekwas Mountains stripped of cones by baboons, but that is a different story.)

The Town Engineer at Paarl is working on this principle in his programme of hakea and pine eradication on Paarl Mountain: he has them felled in summer. The fruits open at once, and the little rodents have a feast. You can see traces of it. A couple of years will tell whether our faith in the rodents' ability to find and eat all the seeds is justified.

My only mental reservation is that birds may also

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come to the feast and, picking up more seeds than they can digest, may sow them far and wide. The occurrence of isolated specimens of *hakea* in mountain fastnesses (the Hawekwas again, for example) far from any known infestations, can only be the result of bird transportation. A few years will show on Paarl Mountain whether this is so or not, but regular extended-order sweeps of the open veld there will make detection and control economically possible.

But only if we can keep fires out. Now that the dominant role of the little mammals in keeping alien vegetation in check is more fully understood, we dare not lightly allow anything that will destroy these indefatigable little allies wholesale.

The short period of complacency about fire is over. We can tolerate controlled fires, and we must tolerate

the clearing of fire-belts to prevent the greater evil of the fires which singe off the whole countryside, like the conflagration of 1945 in the Kogelberg Reserve. But then it must become part of the controlled fire-drill to make a return visit to the burnt area after a year or so to destroy the alien seedlings that will have come up. This is surely a small thing to ask the Forest Department and other authorities responsible in different places.

We can no longer regard fires in our flora as just fires in our flora. The presence of acacia, *hakea* and pine species that are encouraged by fire, and which when encouraged form dense communities capable of entirely choking out the natural flora, has made it essential to prevent fires with all the energy and ingenuity we can muster.

Let us therefore get our sackcloth and ashes (and fire-fighting equipment) ready for 5 February!

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The Botany of Swaziland

By R. H. COMPTON

SWAZILAND is a small country, about 70 miles wide and 100 miles long, but within its 7,000 square miles it includes a great variety of altitudes, soils and climates. The north-western boundary follows a line of peaks separating it from the Barberton district of the Transvaal: the highest of these is the round dome of Emlembe, 6,122 ft. alt. The whole of the western and much of the south-western sides of the country lie above 4,000 ft. alt. and consist mainly of granite hills with picturesque outcrops of bare rock and abundant mountain springs and streams. The eastern and north-eastern sides and much of the eastern half of the country as a whole are low lying, with altitudes of 500-1,000 ft., but separated from Moçambique and Zululand by the Lebombo range of hills, 2,000-2,500 ft. In between the upland areas of the west and the lowland areas of the east is a belt of country commonly called middleveld with altitudes of roughly 1,500 to 3,000 ft., which is the most suitable for farming and contains the most population.

The Territory is one of the best-watered parts of southern Africa, with several fine rivers rising in the western hills and the adjoining Transvaal highveld and flowing in a generally eastward direction and through poorts in the Lebombo Range towards the Indian Ocean. These are the Lomati and Komati, the Black and White Mbuluzi, the Great and Little Usutu, the Ingwempisi and Mkondo, and the Ingwavuma, all perennial streams clear in their upper reaches but becoming somewhat turbid lower down.

The climate varies with the altitudes, from relatively cool or temperate in the hilly west with a good summer rainfall, much of it being in the mist belt, to very warm conditions in the lower levels, especially along the western side of the Lebombos, and a more limited rainfall. The winter climate is dry with skies generally cloudless throughout.

With so great a variety of physical conditions the plant cover is correspondingly rich and varied. It is customary to distinguish three main types of vegetation. In the western hills, at altitudes from about 3,500 ft. upwards the slopes are covered with grass mingled with a great variety of perennial herbaceous plants with bulbs, tubers, woody rootstocks, etc. This highveld area

is green during the greater part of the year, but dries off completely in the winter months from June to August. Trees are generally absent, but many trees and shrubs occur among the groups of granite boulders, where their seedlings are protected from grass fires and browsing animals: and patches of forest, in some cases including trees up to 75 ft. in height or thereabouts, occur on boulder scree and in the deeply cut stream-valleys in the slopes. This part of the country has been much changed by repeated grass burning, especially in connection with sheep brought in from the Transvaal for winter grazing, and by plantations of pines and eucalypts on a vast scale, as well as wattles, which tend to sow themselves in the grassland: but floristically it is still by far the richest and most interesting, the rocky outcrops and upland swamps in particular bearing a great wealth of plant life.

The middleveld is botanically the least interesting of the three main vegetational divisions. In its primitive state it appears to have been grassland with scattered thorn-bushes (various small-tree species of *Acacia*), but in the course of human occupation, especially in the Native areas, it has deteriorated botanically as a result of tree-cutting, shifting cultivation and overgrazing. Rock outcrops are relatively few, the rainfall is lower than in the mountainous areas, springs and swamps are scarcer and the banks of the rivers have been largely denuded of their natural forest. Improved agricultural methods would seem to hold out the only hope for this type of country, which has lost almost all of its original botanical interest, except in a few localities.

The middleveld merges gradually downwards into the various types of bushveld, the boundary being at about 1,500 ft. alt., where thorn-bushes mingle with the numerous species of trees, mostly broad-leaved evergreens, characteristic of the lower levels.

This lower country, about a quarter of the whole area of Swaziland, is a gently undulating plain, through which run the larger rivers, but which is otherwise only watered by shallow watercourses with few pools, dry most of the time. The average altitude is about 1,000 ft., but at Mbuluzi Poort the river runs through the Lebombo Range at about 250 ft. alt. There are several kinds of soil and the types of the bushveld vegetation

vary correspondingly. The trees are mostly scattered, except along the watercourses, and reach 30 to 40 feet in height. The undergrowth is mainly grass with a considerable number of herbaceous plants, shrubs and climbers. This bushveld is mainly used for cattle-ranching by European owners, and for grazing and shifting cultivation by Africans. The vegetation has retained much of its primitive character in the European areas, where cattle have replaced the former dense herds of game; in the Native areas, however, it has been greatly changed, a large proportion of the trees having been cut out, leaving only such useful species as the marula (*Sclerocarya caffra*) and certain species of *Ficus*. Temperatures are high, and along the western foot of the Lebombo they are frequently well over 100°F.

The Lebombo Range, reaching about 2,000-2,500 ft. alt., forms the eastern side of the Territory and has a bushy vegetation on the hills with forest in the valleys: both being of types differing from those in the rest of Swaziland. The African population is rather abundant and except on European farms much alteration has occurred in the density of the vegetation.

So much for the general aspect of the vegetation. Turning to its floristic composition we find a great wealth of species, and though limited in comparison with the vast flora of the south-western Cape, for example, it can be regarded as one of the richest areas of the summer-rainfall districts of southern Africa. So far 2,240 species of flowering plants and pteridophyta have been recorded, comprised in 737 genera, and it is clear that with fuller exploration of the country many more genera and species will be brought to light.

Until recently knowledge of the Swaziland flora was the result of a few visits of limited duration and extent by botanists from the Union: the only person resident in Swaziland to collect systematically being Major O. B. Miller who was Forest Officer here (together with Bechuanaland) from 1938-44, and whose collections are represented in the National Herbarium, Pretoria, and the Forest Research Institute, Oxford. Other collectors include Bolus, Burtt Davy, Rogers, Pole-Evans and members of the Staff of the Union Division of Botany. The results were included in Burtt Davy's Check List for the Transvaal with Swaziland—taken together—and in the only two volumes published of Burtt Davy's *Flora*. Many hundreds of species have now been recorded which did not appear in either of these publications.

The establishment in January 1956 by the Government of Swaziland of a Botanical Survey, with the assistance of grants from the Colonial Development and Welfare Fund, made it possible to collect and study the flora in all parts of the Territory at all seasons of the year. A building was erected to house a herbarium and a small piece of ground was made available for growing non-flowering material to maturity. Transport was provided for and at present a Land Rover is attached to the Survey. The staff consists of myself and an African assistant. So far it is the floristic composition of the vegetation which has been chiefly studied. Valuable assistance has been given in the determination of the collection by the National Herbarium, Pretoria, and by the Compton Herbarium, Kirstenbosch: both of these institutions receive duplicate specimens as available. The collection at Mbabane now consists of 5,400 mounted sheets, each bearing names and full particulars.

The relationships of the Swaziland flora, as is natural, are with the adjacent areas of the eastern Transvaal and Zululand, and there are a few links with the flora of Moçambique. In the forests one finds plants which extend all the way from Central Africa to the western Cape—one may mention *Halleria lucida* (white olive), *Rapanea melanphloeos* (wild beech), *Kiggelaria africana* (wild peach), *Rhoicissus capensis* (wild grape), *Podocarpus latifolius* (yellowwood) and many others: these being extensions, reaching as far as the Cape, of elements of the Central African forest flora. On the other hand, in the upland areas, mainly above 4,000 ft., one finds elements of the 'Cape Flora'—half a dozen *Proteas*, a *Leucospermum* (as well as species of the more 'tropical' Proteaceous genus *Faurea*); eight species of *Erica*, including a fine white variety of *E. cerinthoides* and the handsome *E. oatesii*, as well as the little-known *E. holtii* and *E. barbertona*—most of them being species with an eastern Cape affinity; a *Passerina*, a *Muraltia*, several *Hermannias* and *Pelargoniums*, four *Cliffortias* including the waterside *C. strobilifera* of the Cape Flats etc., a large shrubby *Phyllica*—these probably representing a northward migration of genera with typically southern affinities. Such a typical southern forest tree as *Cononia capensis*, however, has apparently not yet migrated beyond Zululand.

But the greater part of the flora of Swaziland, at all altitudes, consists of species which also occur in the adjoining districts of the eastern Transvaal and Zululand. Comparatively few species are peculiar to Swaziland itself.

Some of the more striking of the Swaziland plants may be mentioned. Perhaps the most celebrated species is the small 'arum lily', *Zantedeschia rehmannii*, whose spathes range in colour from white through shades of pink to a deep maroon or burgundy shade—the last only known from one limited locality. Larger yellow and white arums also occur, including occasional plants of the Cape arum lily, *Z. aethiopica*.

Aloes are represented by about 25 species, perhaps more, ranging from the tree *A. bainesii* to the tiny *A. albida*, only a few inches high. The handsome *A. marlothii*, *A. arborescens* and *A. suprafoliata* are locally abundant, the first named growing by the thousand on rocky hills in the middleveld.

Other large succulents are the Euphorbias, of which the tree species *E. ingens*, *E. cooperi*, *E. evansii* and the eastern Cape *E. triangularis* occur, the first being a characteristic tree of the bushveld. There are also a few other succulent species of Euphorbia.

Among other succulents one may mention the Asclepiads, of which there are two species of *Stapelia*, three of *Huernia* and two of *Caralluma*; and there are many other herbaceous Asclepiads as well. The genus *Haworthia* is represented by varieties of *H. limifolia*, said to be peculiar to Swaziland; and there is one *Gasteria*, the rare *G. batesiana*. Several of these succulents, strangely enough, grow in the shade of dense forest. Cotyledons, Kalanchoes and several species of *Crassula* also occur.

Orchids are abundantly represented by both epiphytic and terrestrial species. The most striking is *Ansellia gigantea*, of which huge clumps occur on bushveld trees, with its branching sprays of large clear yellow flowers. The charming little white-flowered *Polystachya ottomiana* is frequent in the highveld kloofs and *Mystacidium filicorne* and *Listrostachys arcuata* are also occasional epiphytes. The ground orchids are numerous, the genus *Eulophia* being represented by at least twenty species, many very handsome plants; and there are several *Habenarias*, *Disas* and *Satyrums*, among genera well known at the Cape. One remarkable spot has no less than seven species of terrestrial orchids growing within 100 yards square in the ground litter of a plantation.

Other bulbous and tuberous Monocotyledons are also plentiful. There are some splendid species of *Brunsvigia*, *Haemanthus*, *Nerine*, *Cyrtanthus*, *Crinum*, *Eucomis* and *Amموcharis*. Smaller-flowering species of *Bulbine*, *Anthericum*, *Ornithogalum*, *Albuca*, *Tulbaghia*, *Eriospermum*, are plentiful. Both *Gloriosa* and

Littonia occur locally: there are some fine *Kniphofias* and several species of *Agapanthus*, including the fine and recently rediscovered *A. caulescens*. There are many showy *Hypoxis* and the charming *Rhodohypoxis baurii* occurs here and there on moist peat-covered rocks. The Irids include *Moreas* and *Aristeas* and many species of *Gladiolus*, *Watsonia* and related genera.

Composites are very abundant, of course, including at least 57 species of *Helichrysum* (Everlastings) and 58 species of *Senecio*. There are several *Gerberas* including the famous *G. jamesonii* (Barberton Daisy) and some fine species of *Callilepis* and *Vernonia*—*V. podocoma* being 8 feet high and bearing enormous trusses of mauve flowers in late summer. Leguminosae too are very numerous.

Grasses are legion, many of them growing to 6 or 7 feet high, and some of them yielding very good summer and winter pasture, the foundation of ranching in the bushveld.

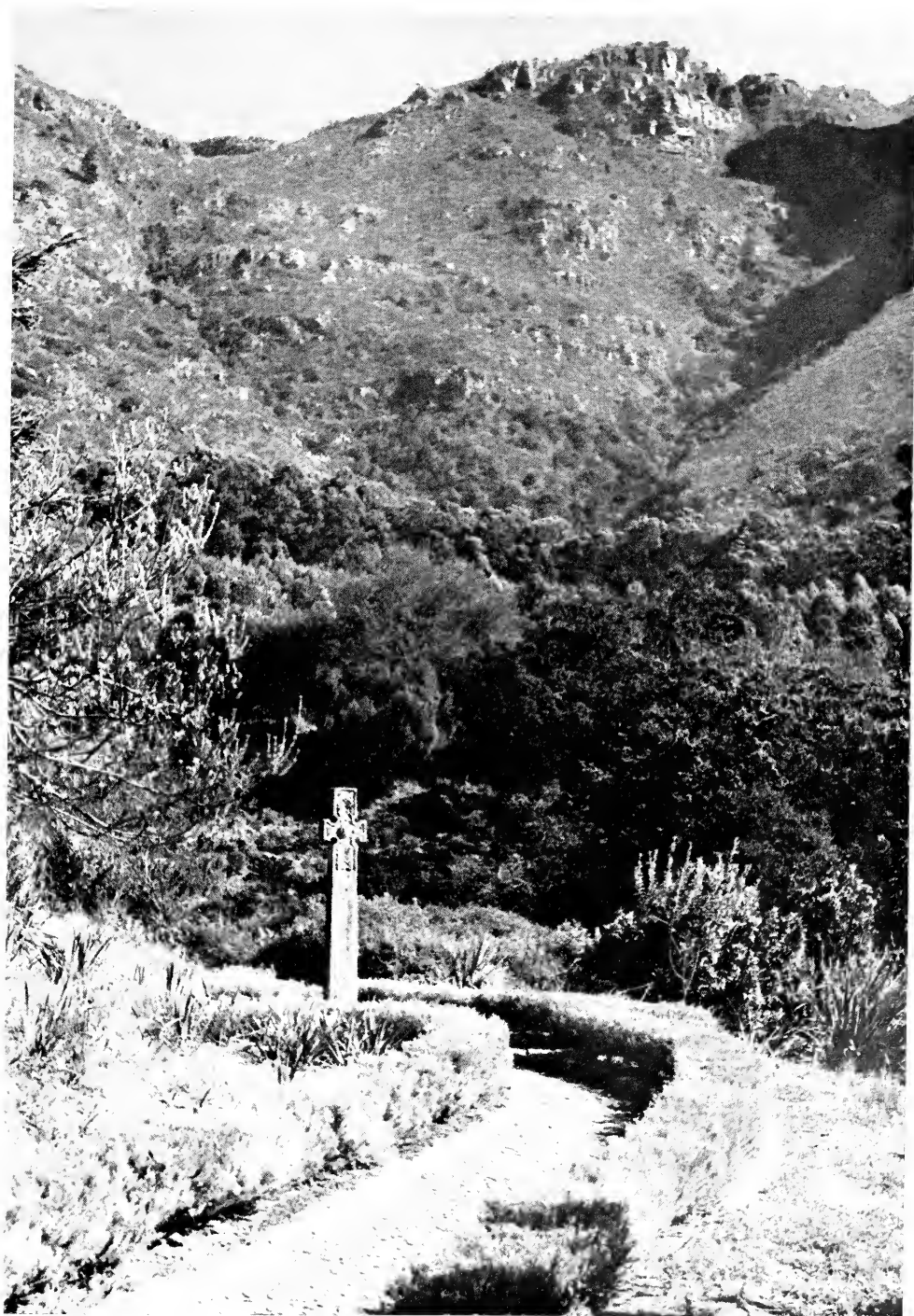
There are some fine flowering trees of which may be mentioned the local Kafirbooms *Erythrina lysistemon* and *E. latissima*, the locally rare Cape chestnut *Calodendron capense*, the crimson-flowered *Schotia brachypetala*, the leguminous *Pterocarpus rotundifolius* with its big panicles of bright yellow flowers, and the lovely white-flowered *Dombeya rotundifolia* and *Trichocladus grandiflorus*.

The thorn-trees are very numerous, both in species and individuals. Of *Acacia* 25 species have been recorded, ranging from the splendid knob-thorn, *A. nigrescens*, and the fevertree, *A. xanthophloea*, down to the species so widely spread through southern Africa, *A. karoo*, the so-called mimosa.

There are several parasitic species of *Loranthus* and *Viscum*, one being the magnificent *L. zeyheri* growing on various *Acacias*.

Ferns and fern-allies include the club-moss *Lycopodium clavatum*, ranging from rare occurrences on the summits of the Cape mountains to the Arctic Circle, the extremely rare (in South Africa) *Psilotum triquetrum*, the lovely Cape Tree Fern, *Hemitelia capensis* here and there in dense forest, maidenhairs, three species of *Gleichenia* and a few epiphytes and filices.

Finally, there are three cycads in the Lebombo area. One, *Encephalartos villosus*, extends southward to the Eastern Cape: another 'stemless' forest species is *E. umbuluzensis*, and the third, *E. ubomboensis*, with a trunk up to 10 ft. high, occurs on rocky hill crests.



[Photo: Dudley D'Eves.]

PLATE 2

The grave at Kirstenbosch of Harold Pearson, founder and first Director of the National Botanic Gardens.
Freed from encroaching vegetation, the grave now stands out dramatically on the hillside.

South Africa's Contribution to World Botany*

By H. B. RYCROFT

WHY did civilized man decide to settle in South Africa? It was to establish a garden to produce fruit and vegetables for the seafarers journeying to and from the East. Plant life therefore played the most important role in the early history of European settlement in this country, and it still plays a very important role.

Even before Jan van Riebeeck landed at the Cape in 1652, plants had been collected in South Africa and taken back to Europe. The first South African plant of which there is any record is *Protea neriifolia* which was drawn and described by Clusius in Antwerp in 1605, forty-seven years before van Riebeeck reached our shores.

South Africa, and the south-western Cape in particular, possesses a wealth, diversity and beauty of natural flora unparalleled in any other part of the world. It is not surprising therefore that once this flora had been discovered botanists were eager to visit this fair land of ours to collect and examine our floral treasures.

Several people of the Dutch East India Company collected plants at the Cape, but perhaps the most famous was Karl Thunberg, known as the 'Father of South African Botany'. He was a Swede who visited South Africa in 1772 and stayed in this country for three years.

Thunberg was followed by several other collectors, the most noteworthy of which were Sparrman—also a Swede—James Niven, Francis Masson, Burchell, Drege, Ecklon and Zeyher. Niven and Masson collected not only herbarium specimens but also living plants and seeds and they contributed in no small measure to the additions to the famous Royal Botanic Gardens at Kew.

The early work in connection with plant science in South Africa was chiefly the collection of plants which were sent to Europe for naming.

In the early 1800s Proteas and Heaths collected at the Cape were common subjects in English gardens, and many of our species were described from plants grown in cultivation overseas.

Dr. William H. Harvey, who was resident at the Cape

for some time, commenced a full account of the flora of South Africa and, with the help of O. W. Sonder of Hamburg, published the first three volumes of *Flora Capensis* between 1859 and 1865. Other volumes were added, very largely with the assistance of Kew, and the last part was issued in 1933. The *Flora Capensis*, although much out of date in many respects, still remains the standard work on the South African flora.

Many species, new to science, have since been discovered and a new 'Flora of Southern Africa' is now being compiled. Dr. R. A. Dyer, Chief of the Division of Botany in Pretoria, is chiefly responsible for this publication. It will take many years to complete the work but we expect that the first volume will appear shortly.

In a talk in this series on 'South Africa's Contribution to World Science' when I deal with 'Plant Life' it is impossible to discuss all aspects of the subject. For example, South Africa has contributed in no small measure to world science in the fields of agricultural crops, pastures, forestry, fruit and vegetables, but these are outside my province and I propose concerning myself only with our indigenous plants.

Botany is fundamental to the development of any of the biological sciences in South Africa. For example, it frequently happens that research workers in agriculture or forestry realize that they cannot continue their investigations without the help of the botanist. In the first place they must be quite certain of the identity of the plants with which they are working and perhaps their affinities to other closely related species.

Taxonomy, that branch of botany which is concerned with the naming and classifying of plants, is therefore often regarded as the starting-off point in any botanical work. Taxonomic research is usually undertaken in a herbarium where plant specimens are permanently preserved and stored for reference. The largest in South Africa is the National Herbarium in Pretoria. It was founded in 1903 and contains no less than 380,000 specimens. The oldest herbarium in the Union, the

*Based on a talk broadcast in October 1959.

South African Museum Herbarium, founded in 1855, was amalgamated with the Compton Herbarium at Kirstenbosch in 1956 and the two consist of approximately 200,000 specimens. Another one of importance is the Bolus Herbarium, with about 160,000 specimens, at the University of Cape Town. In addition there are herbaria in the botany departments of all the universities and at some museums.

There is a perpetual demand on these herbaria from Government Departments, other scientific institutions, students, farmers and the general public for identifications of plants, and the main resources of the herbaria are devoted to fulfilling these demands. At the same time research makes steady progress in the classification of our South Africa flora and descriptions of plants new to science are being published. Due to incorrect naming or classification in the past whole genera or families are constantly being revised.

Most of the early descriptions of new species were done overseas and were usually based on inadequate, dried specimens. In fact, the naming of new species was an easy matter two centuries ago! Any specimen which looked different from others in the herbarium could be described as a 'species nova', and some species were even described from illustrations of plants cultivated in Europe.

The number of botanists in South Africa in relation to the wealth of natural flora is very small indeed and taxonomic work on our plants is still being undertaken overseas. This practice is sometimes apt to cause us some concern because we have discovered from experience that it is essential to examine the plants under natural conditions in the field. During recent years, several botanists from Britain, Sweden and Germany have visited South Africa in connection with their taxonomic work and have realized the truth of this statement.

The results of taxonomic research are published in a number of general scientific journals such as the *Transactions of the Royal Society of South Africa*, or the *South African Journal of Science*. Most, however, are published in specialized journals, for example, *Bothalia* and *Flowering Plants of Africa* issued by the Division of Botany, and the *Journal of South African Botany* issued by the National Botanic Gardens of South Africa at Kirstenbosch.

Cost of printing has always been a serious handicap for the publication of scientific work but here in the south-western Cape where we find the greatest concen-

tration of natural flora we are extremely fortunate in having certain funds. Money left by the late Dr. H. G. Fourcade is available to pay some printing costs of botanical work by authors connected with the University of Cape Town or with Kirstenbosch.

Many outstanding contributions have been made in plant taxonomy and allied fields and mention may be made of some, as, for example, Bolus, *Orchids of South Africa*, 1893-1913; Sim, *The Forests and Forest Flora of the Colony of the Cape of Good Hope*, 1907; Marloth, *The Flora of South Africa*, 1913-32; Bews, *The Grasses and Grasslands of South Africa*, 1918; Pole Evans, Phillips and Dyer, *Flowering Plants of Africa*, 1920 onwards; Phillips, *Genera of South African Plants*, 1926; Salter, *The Genus Oxalis in South Africa*, 1944; Reynolds, *The Aloes of South Africa*, 1950; Levyns, *The Genus Muraltia*, 1954; Chippendal, *Grasses and Pastures of Southern Africa*, 1955; Lewis, *The Genus Babiana*, 1959.

Taxonomic work has been concerned chiefly with flowering plants but the lower forms of plant life have not been neglected. In fact, the study of marine algae has received and is receiving considerable attention especially by Professor W. E. Isaac of the University of Cape Town. Research in this field is at present mainly academic, but it is my firm belief that the practical benefits to mankind will be of great importance in the future.

There is a great wealth of flora, fauna and minerals at present little known in the sea and these may be of tremendous value in feeding a hungry world.

South Africa possesses a considerable diversity of topography and climate and this is very well reflected by the different vegetation types—the 'fynbos', forests, savannah, grasslands and semi-desert. Here I wish to say something about plant ecological work. Plant ecology, very simply, is the study of the relationship between plants and their environment. It seeks to discover why certain species grow where they do, how and why they are as they are and why they behave as they do.

Ecology is a tremendous field in that it combines most branches of plant science and is most important and valuable in its application to land-utilization practice in South Africa. The type of plant community occupying a particular area provides a sound indication of what could or could not be grown there. For example, an area sparsely covered by succulents and other drought-resisting plants is hardly likely to be suitable for forestry purposes.

The figure who stands out most prominently in the ecological field is the late Professor J. W. Bews, principal of the Natal University College. Most of his work was done in Natal but he set the pattern for ecological work throughout the country. He indicated that plants and plant communities were not static, but that they were plastic and dynamic. As a plant community developed it changed and was gradually replaced by a different type of community until a climax community was established in equilibrium with nature. A change in the environmental factors or interference or destruction of the community by grazing or burning would set in motion a new series of successful stages.

Bews also showed that through the centuries plants and plant communities migrated and evolved new types. Thus he put forward the suggestive hypothesis that the South African subtropical species of trees and shrubs were directly or indirectly derived from allied tropical forms and stated that the origin for the subtropical elements of the South African flora was to be sought for in the vast reservoir of plant life in the tropics to the north.

An outstanding contribution by Bews was his *Plant Forms and their Evolution in South Africa* published in 1925. Other works on the ecology of South Africa are Pole Evans, *A Vegetation Map of South Africa*, 1936; Adamson, *The Vegetation of South Africa*, 1938, and Acocks, *Veld Types of South Africa*, 1953.

It was particularly Acocks who stressed the inter-relationship between plant ecology and land management. He explained that in some places the unpalatable Karoo vegetation had advanced as much as 150 miles into the grassveld. This is a very serious situation, but at the same time he has indicated that this invasion can be checked by wise land-utilization practice based on a knowledge and study of the natural vegetation.

A fairly recent but very important branch of botanical research has been that of palynology, the study of pollen grains and spores. Dr. van Zinderen Bakker of the University of the Orange Free State has undertaken pioneering work with regard to palynology and the results of his researches are likely to throw much light on the past vegetational history of our country. Under suitable conditions spores have been preserved in geological deposits for many centuries where other plant

remains have completely disappeared, and provide a clue to the reconstruction of former climates and vegetation and consequently of the former life of man and animals on the earth.

South Africa has contributed in no small measure to world horticulture. Do we all know that the beautiful garden varieties of *Gladiolus* were derived and bred mainly from our wild species of *Gladiolus*? The so-called geraniums which are now grown in all parts of the world owe their origin to the South African species of *Pelargonium*. The nerinas, watsonias, freesias, sparaxis and Barberton daisies all come from South Africa.

Kirstenbosch boasts of its cultivation of more than 4,000 different South African species in its Gardens. The growing of our indigenous plants is not always easy and it has taken much patience, careful study and keen observation to discover the secrets of the particular requirements of many of the species. In papers, mainly in the *Journal of the Botanical Society of South Africa*, these secrets have been made known to the world and today hundreds of our species are being successfully cultivated in Botanic Gardens and private gardens in every continent. In fact during the first nine months of this year more than 30,000 packets of South African seeds have been dispatched from Kirstenbosch to practically every country of the world.

Although we have had considerable success in cultivating South African plants a tremendous amount of experimental research must still be undertaken on the behaviour and requirements of our indigenous flora. This is proceeding at a pace that is all too slow on account of limitation of staff and funds.

The study of our natural plant life can continue only while such natural plant life remains. Much of it has already disappeared and what is left is in the process of disappearing. The causes are many and in a developing country the destruction of native vegetation is inevitable. Progress and expansion must be maintained in agriculture, forestry, industry and housing but much of our natural vegetation is retreating steadily in the face of encroachment and invasion by alien vegetation.

Our most important task now is to investigate this problem to safeguard the future of our natural heritage.

Suid-Afrikaanse Proteaceae en Hul Teelt

Deur H. F. WERNER

(Oud-kurator, Nasionale Botaniese Tuine van Suid-Afrika, Kirstenbosch)

INLEIDING EN BESKRYWING

AL die lede van die Suid-Afrikaanse Proteaceae is meerjarige plante, gewoonlik het hele, leeragtige en dikwels harige, blare, en in die tuinbou ressorteer hulle onder 'n klas genoem „harde hout-tipes”. Hulle neem gewoonlik die vorm aan van struik of klein struik, maar sluit boomsoorte in soos *Leucadendron argenteum* (silwerboom) en *Faurca* spp. (insonderheid *F. macnaughtonii*, 'n pragtige meerjarige woudboom).

Hulle neem 'n plek in onder die mooiste inheemse plante van Suid-Afrika, en sommige van hulle word beskou as van die versierendste struik in die wêreld.

Die familie is natuurlik een van die opvallendste terreinbakens van die suidwestelike—winterreënval—plantegroei van Suid-Afrika, waar die grootste aantal soorte, sowel as die sierlikste, gevind word, met betreklik min verteenwoordigers in ander dele—somerreënval.

Dit is in die laaste jare bewys dat die suksesvolle teelt van hierdie familie, in verskeie dele van Suid-Afrika, buite hul onderskeidelike natuurlike groeiplek, hul nie langer sulke „moeilike” plante maak, soos tot dusver die algemene mening was nie. Ook in Australië, Nieu-Seeland, dele van die Verenigde State soos Kalifornië, sowel as lande met vergelykbare toestande, is sukses behaal.

Die Nasionale Botaniese Tuine van Suid-Afrika, Kirstenbosch, is grootliks verantwoordelik, d.m.v. verspreiding van saad en inligting, met die teelt van hierdie pragtige en unieke plante.

Die inligting in hierdie artikel verskaf is gebaseer op ondersoeke en praktiese resultate deur hierdie tuine verkry deur die werk van 'n aantal jare in voortplanting en teelt. Geringe aanpassings in metodes om in enige besondere plaaslike toestande elders aan te pas, kan maklik bewerkstellig word.

Dit is vanselfsprekend dat 'n baie uitgebreide versameling van die verskillende klasse en soorte nou hier geteel word, en waar die blomseisoene in hierdie groot familie so uiteenlopend is, kan besoekers aan Kirstenbosch byna dwarsdeur die jaar verskeie van hulle sien blom—met

die grootste getal gedurende die winter, lente en vroeë somer.

Weens die beperkte lengte van hierdie artikel kan besonderhede van alle soorte nie verskaf word nie en die aandag word slegs gevestig op die merkwaardigstes. Die hoogtes aangegee vir die verskillende soorte is gemiddelde hoogtes: sommige soorte groei baie hoër met die loop van jare, maar word dan „langbenerig” en verloor hul waarde vir die tuin.

LEUCOSPERMUM. Waar ons met die ornamentele waarde van die Proteaceae as tuinplante handel moet ons die hoogste plek toeken aan die klas *Leucospermum* (speldekussings). Twee pragtige soorte is *L. bolusii* (5 vt.—wye verspreiding) en *L. nutans* (5 vt.—wye verspreiding); hul laagste takke stryk oor die grond en die plante is simmetriese heuweltjies blomkoppe omstreks in die middel van die winter tot die somer. Die blomkoppe (geel, goud of rooierig in eersgenoemde soort, en rooierig in laasgenoemde) is sirkelvormig en bestaan uit 'n saamgepersde kussing van herbuigde of gerolde blommetjies met vooraanstaande style wat die tipiese speldekussing-indruk voorsien.

Die bogenoemde kleure is die oorheersendes in die klas, maar daar is 'n taamlike wye verskeidenheid, volgens die verskillende soorte. Ander opsigtige soorte met blomkoppe wat min of meer met bogenoemde soorte ooreenkom is *L. attenuatum* (5 vt.), *L. catherinae* (4 vt.), *L. grandiflorum* (5-6 vt., regop), *L. incisum* (5 vt.), *L. lineare* (4 vt., met blare soos naalde), *L. praemorsum* (6 vt., regop).

Heeltemal alleenstaande is die manjifieke *L. reflexum* (10-12 vt.) met silwer-grys blare en groot oranje-skarlakenrooi koppe wat nog die verdere unieke karakter trek besit dat die style van posisie verander soos hulle ouer word. Hierdie soort word 'n puik regop, goed-vertakte bos, met talle koppe terselfdertyd oop; hulle word gedra op lang, reguit stele, verskyn vroeg in die winter en blom tot in die somer.

Nog 'n juweel is die betreklik dwergagtige *L. tottum* (3-4 vt.), met massas pienkagtige-dofgeel koppe op sim-

metriese takke, wat takke afgee tot op die grond. Blom gewoonlik later as meeste van die anders.

Soorte met kleinerige koppe sluit in *L. album* (4 vt.), met talle koppe in trosse, wat wit oopgaan en ligpienk word; gegeur; *L. crinitum* (4 vt.), en *L. muirii* (4-5 vt.).

Van die kruipsoorte is *L. prostratum* uitstekend om lae mure mee te drapeer; dit dra talle klein goue blomkoppe, wat later karmosyn word, ook gegeur. Nog 'n uitbinker in hierdie klas is *L. stenanthum*.

Die leucospermums het as gesnyde blomme uitstekende karaktertrekke in soverre dat hulle lank hou, maklik verpak kan word en reise perfek deurstaan. Die blomtyd van hierdie klas duur vanaf die winter tot diep in die somermaande.

PROTEA. Die klas Protea word gekenmerk deur die vooraanstaande omhulsel van skubbe (gewoonlik baie kleurvol en dikwels versier met 'n baard aan die punte) wat die kop van die blomme omsingel. Die kleurreeks wat die meeste in hierdie klas voorkom is pienk, met af en toe 'n albino; ander kleure is rooi en, meer seldsaam, groen.

As 'n „nasionale embleem” van Suid-Afrika is die Protea te goed bekend om in besonderhede af te daal en in die beskikbare ruimte kan slegs sommige van die merkwaardigste soorte van hierdie groot en uiteenlopende klas genoem word.

Uitstaande is *P. cynaroides* (reuse of koning-protea) met yslike hemisferiese koppe, soms byna 1 vt. in deursnit, wat wissel van silwer-pienk tot donkerroos of roomwit, volgens die soort. Die plante is gewoonlik 3-5 vt. hoog (hoër waar hulle gedeeltelik skaduwee ontvang) en nuwe stele ontwikkel vanaf die voetendeel van die plant. Die blomtyd wissel.

P. barbiger (groot wollerige protea) is ook 'n uitstaande bos van omtrent 5 vt. hoog met ietwat liggroen blare. Kenmerkend van die koppe is die wollerigheid van wit baarde aan die punte van die omhulsel-skubbe en middel van die kop. Kleure kom voor in skakerings van pienk, soms lig swael-pienk sowel as wit—blom van laat winter na lente. Ander bebaarde pronksorte is: *P. lepidocarpodendron* (6-8 vt.), *P. marginata* (12 vt.), *P. nerifolia* (8-10 vt.), *P. stokoei* (4 vt.), *P. speciosa* (2 vt.). Met ietwat minder baard is: *P. grandiceps* (4-5 vt.) en *P. pulchella* (3-5 vt., versprei).

Onder die sierlike soorte met baardlose skubbe kan ingesluit word *P. compacta* (8-10 vt., koppe op lang stele gedra, ideaal vir sny), *P. mellifera* (suikerbos)

(6-10 vt.), *P. obtusifolia* (10 vt.). In een of twee van hierdie afdeling soos bv. *P. latifolia* (8-10 vt.) en *P. longifolia* (5 vt.) is die „kern” baie aantreklik.

'n Verder afdeling kon wel insluit daardie soorte wat aantreklik is grootliks vanweë hul blootgestelde style, veral *P. grandiflora* (8-10 vt.) en *P. longiflora* (10 vt., blomkop met 'n omhulsel wat wydop lê, byna soos 'n waterlelie). *P. laticolor* (12-15 vt.) met klein koppies is ook uiters sjarmant.

Onder die betreklik dwergagtige soorte moet melding gemaak word van *P. rosacea* (bergroos) (3 vt.) met blare soos naalde en hangende koppe in wynrooi of groen, *P. pityphylla* (1-2 vt.), *P. minor* (1-2 vt.) en *P. cedromontana* (3 vt.).

Terwyl die blomtyd van die meerderheid van hierdie klas as winter en lente beskou word, is daar genoeg soorte om blomme dwarsdeur die jaar te voorsien.

LEUCADENDRON. In die klas Leucadendron is die bekenste waarskynlik *L. argenteum* (silwerboom), omtrent 30 voet hoog, met sy syagtige, silwer-grys blare. Ander soorte word onder die struik geklassifiseer, met 'n aantal versierende soorte. Hulle skoonheid is grootliks te danke aan die boonste blare om elke kop wat met blomtyd vergroot en helder kleure aanneem, veral skakerings van geel wat in party soorte pragtige tinte aanneem soos die blare verouder. Dit moet op gelet word dat in hierdie klas die manlike en vroulike blomme op verskillende plante voorkom en dat of die manlike of die vroulike plante die aantreklikste mag wees of wat die blare of wat die blomme betref, of selfs albei. Meeste soorte vertoon die beste gedurende die winter en lente. Onder die spoggerigste soorte, behalwe *L. argenteum* is: *L. adscendens* (wisselbaar), *L. aemulium* (5-6 vt.), *L. decorum* (6-8 vt.), *L. discolor* (5-6 vt.), *L. grandiflorum* (4 vt.), *L. sericocephalum* (6 vt.), en *L. venosum* (4 vt.).

AULAX. Verwant aan Leucadendron is die klas Aulax (al ander soort onder die Suid-Afrikaanse Proteaceae waarin manlike en vroulike blomme op verskillende plante groei). Die manlike plant se blomme kom voor in klein blomtrosse, wat die blomstand 'n veeragtige voorkoms gee, terwyl die vroulike plante die blomme in die vorm van omhulde koppe dra. Die soorte verteenwoordig is: *A. cneorifolia* (7 vt.), *A. pallasia* (8-10 vt.), *A. pinifolia* (8 vt.). Almal het baie nou blare.

MIMETES. Mimetes is 'n verdienstelike klas. Ongelukkig is een of twee pragtige wildsoorte baie seldsaam en hul word net so seldsaam geteel. 'n Paar is miskien

op die rand van uitsterwing. In hierdie klas word die koppe in die oksels van die boonste blare gedra. Die blare is soms helder pienk gekleur wanneer die blomme verskyn soos bv. in *M. lyrigera* (3-4 vt.) en *M. hartogii* (6-9 vt.), wat baie kleurvol is van laat in die winter tot in die somer. *M. hirta* (5-6 vt.) het groen, harige blare; ander soorte het silwer, harige blare.

OROTHAMNUS. 'n Monotipiese klas is *Orothamnus*, wat die seldsame *Orothamnus zeyheri* (vleiroos) (5-6 vt.) insluit, met sy merkwaardige hangende blomkop waarvan die vlesige skubbe 'n skitterende, deurskynende rooi is. Die plante is regop, met min stele, kaal onder, en die koppe word aan die end gedra. Hierdie seldsame blomsoort is met sukses geteel en het gebloom in Kirstenbosch van wilde saad (*Reports and Accounts of the National Botanic Gardens of South Africa—1950 and 1951—Reports of Curator of Kirstenbosch*). Verdere navorsing aangaande die gedrag van hierdie plant terwyl hy geteel word sal waardevolle besonderhede aan die lig bring om te verhoed dat dit uitsterf.

SERRURIA. Die klas *Serruria* tel onder sy menige soorte ten minste een van uitmuntende skoonheid, naamlik *S. florida* (blushing bride) (3-5 vt.), die delikate pienk koppe waarvan gedra word op dun takke met gedeelde blare: daar is maar min blare en die plante lewe betreklik kort vanweë hul oorvloedige en lang blomgewoontes—van vroeg in die winter tot aan die begin van die somer. Op die rand van uitsterwing in sy wilde vorm op meer as een tydperk in onlangse tye, was dit vir die eerste maal in 1917 in Kirstenbosch geteel en sedertdien is dit ook uiters suksesvol gekweek. Hierdie plant is geskik om te sny en dien ook uitstekend in ruikers. *S. rosea* is soortgelyk. Ander nuttige hoewel minder spoggerige soorte is: *S. aemula* (5 vt.) en die netjiese digbetakte bosse van *S. artemesiaefolia* (3-4 vt.).

PARANOMUS. Die klas *Paranomus* behoort baie meer geteel te word, veral *P. reflexa* (5 vt.), 'n goed-betakte simmetriese bos wat massas taamlik groot gelerigegroen kussingspeldagtige koppe gedurende die winter dra. Hierdie plant is ook interessant aangesien, as gevolg van dimorfisme, die onderste blare op die takke verdeel is terwyl die boonstes heel bly. *P. crithmifolia* (4 vt.) is aantreklik met sy pienkerige grys blomstande soos penne.

BRABEIIUM. Die klas *Brabeium* word deur slegs een soort verteenwoordig, naamlik *B. stellatifolium* (wilde amandel) (15-20 vt.). Van Riebeeck het dit gebruik om 'n heining in 1660 te plant—deel van die oorspronk-

like heining word steeds in Kirstenbosch behou. Die blomstande van hierdie plant is digte, penagtige trosse wat in die oksels van die blare gedra word en wat later deur fluweelagtige bruin vruggies gevolg word. Die blare word in draaie gerangskik—heel anders as enige ander lid van Proteaceae.

VOORTPLANTING EN TEELT

Die doeltreffendste wyse van voortplanting is d.m.v. saad. Die saai van saad in die Nasionale Botaniese Tuine vind plaas met die koms van die herfs- en winterreëns—omstreeks April. Dit is deur algemene ondervinding en ondersoek op hierdie gebied gevind dat die saad waarskynlik aangemoedig word om te ontkiem deur die egalige, klam toestand, en dat die saailinge op soortgelyke wyse voordeel trek uit die algemeen koeler toestand wat daardie tyd van die jaar heers. Afdamping wat deur hoë vogtigheid of oortollige natheid in die grond veroorsaak is moet derhalwe een van die faktore wees waarteen gewaak moet word.

Nog 'n faktor is die vraagstuk van gesonde saad. In sommige *Protea* spp. en andere is die persentasie vrugbare saad inderdaad baie laag. In die geval van die meerderheid *Protea* spp. het die blomkoppe ten minste 'n jaar nodig om hul saad te laat ryp word, en die koppe bly ongeskonde op die plante vir 'n paar jaar. Wanneer hierdie koppe versamel en drooggemaak word, word die saad vrygestel. *Leucospermum* spp., *Serruria* spp. en *Paranomus* spp. se saad word ryp kort nadat die koppe klaar is. *Leucadendron* spp. wissel tot twaalf maande, volgens soort, waarvan die silwerboom die langste tyd neem.

Die lae persentasie vrugbare saad in die geval van sekere *Protea* spp. is reeds genoem. Dit word verder verwikkel deur die feit dat die saad in baie gevalle baie harig is, wat die uitpluk van die dik, vrugbare saad ietwat bemoeilik, tensy die hare feitlik eers afgevruf word.

SAAI VAN SAAD. Verskeie saaimetodes is in die loop van jare in Kirstenbosch probeer en die beste algemene resultate is sonder uitsondering verkry deur die saad in kwekerybeddens te saai (in taamlik ligte grond, waarby kompos of blaargrond gevoeg word). Hierdie beddens moet in die opelug wees en nie enige skaduwee ontvang nie.

Die maklikste manier van saai is om voortjies oor die beddens aan te bring, ongeveer 6 tot 9 duim uitmekaar en waarvan die diepte van die grootte van die saad afhang, met die gemiddelde diepte ongeveer $\frac{3}{4}$ -1 duim. Die voortjies kan maklik gemaak word deur 'n

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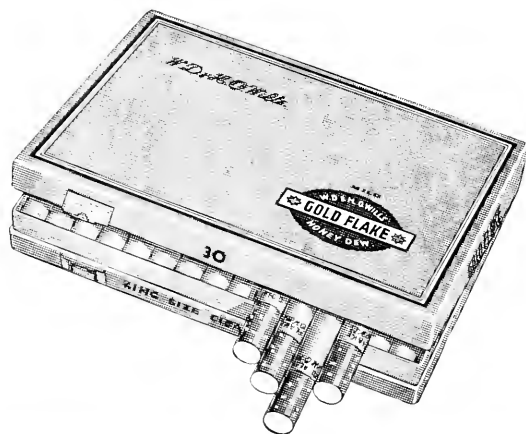
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by

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and

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Botanical Society of South Africa

CALENDAR OF MEETINGS FOR 1960

Saturday, 9 January, 3 p.m.—The Lawn, Kirstenbosch.—Special Gathering for Visiting Members. Conducted Tour of Kirstenbosch.

Tuesday, 22 March, 8.15 p.m.—Lecture Hall, Kirstenbosch.—Annual General Meeting, followed by 'Members' Evening'.

Saturday, 30 April, 3 p.m.—Visit to Compton Herbarium, Kirstenbosch. Tercentenary of Van Riebeeck Hedge.

Tuesday, 24 May, 8.15 p.m.—Lecture Hall, Kirstenbosch.—'A Botanical Visit to Australia'. Illustrated Talk by Mr. & Mrs. J. E. P. Levyns.

Tuesday, 9 August, 8.15 p.m.—Lecture Hall, Kirstenbosch.—Port Elizabeth District—'Where Three Floras Meet'. Illustrated Talk by Mr. F. J. Stayner.

Saturday, 3 September, 3 p.m.—'Visit to a Member's Garden'. Dr. & Mrs. C. A. van der Merwe, 'Son-nig', Scholtzweg, Somerset West. Cars meet 2.45 p.m. Firgrove, on National Road, opposite garage.

Saturday, 10 September, 3 p.m.—Annual Visit to the Karoo Garden, Worcester.

Saturday, 24 September, 12 noon.—WILD FLOWER SHOW. Lecture Hall, Kirstenbosch.

Sunday, 25 September, 11 a.m.—Continuation of WILD FLOWER SHOW.

Saturday, 15 October, 11 a.m.—Annual Gathering of Members, The Lawn, Kirstenbosch.

Saturday, 26 November, 8 p.m.—FESTIVAL YEAR BRAAIVLEIS at Kirstenbosch, Details later.

1961

Saturday, 7 January, 3 p.m.—The Lawn, Kirstenbosch. Special Gathering for Visiting Members. Conducted Tour of Kirstenbosch.

Members are cordially invited to bring their friends to the meetings. Please telephone Secretary re visits to Members' gardens.

Have Your Friends Joined the Society Yet? If Not, Why Not?

strokje hout in die bed tot die gewenste diepte te druk. Die saadjies word 1 duim uitmekaar in die voortjies geplaas, met 'n sanderige mengsel bedek, vasgedruk, en die beddens word klam gehou—die geheim van suksesvolle saai is die behouding van 'n egalige graad van klamheid. As die klamheid te veel wissel kan ontkieming ernstig vertraag word—tot so 'n mate dat die saad van *Leucospermum* spp. bv. rustend mag bly.

Behalwe wisselings in die klamheid van die grond waarteen gewaak moet word, mag dit ook miskien nodig wees om beskerming teen die versteuring van die beddens deur molle te verleen, of deur vernieling deur muise of voëls, asook beskerming teen oormatige reën of ander abnormale toestande.

Onlangse eksperimentele werk te Kirstenbosch oor kwekerybed-metodes het bewys dat as hierdie saadbeddens voorberei word in tuinrame (bakstene met die gewone beweegbare ligte) dit 'n ideale metode is. As die rame diep is, is dit raadsaam om die beddens ietwat te lig sodat wanneer die saailinge uitstoot hulle die maksimum lig en lug ontvang.

IN BLIK PLASING VAN SAAILINGE. Ontkieming wissel volgens klas en soort, en dit verg drie weke of meer alvorens die saadlobbe bo die grond uitstoot. Wanneer die eerste egte blare gevorm word is die saailinge gereed om uitgehaal te word—of om in individuele blikke of houers geplant te word of om in hul permanente posisies in die grond geplaas te word. Dit is gevind dat beter resultate gewoonlik verkry is deur die saailinge vir hul eerste seisoen in blikke te laat „aangroei” vir beter beheer teen besproeiing en peste.

Vervaardigde blikke van gegalvaniseerde yster (omtrent 4-6 duim) wat oopgemaak kan word vir die uithaal van plante met 'n minimum versteuring wanneer planttyd aanbreek, of 2 pd.-konfytblikke, is gepas—behalwe vir die silwerboom wat 'n kragtige groeier is en waarvoor 'n groter blik nodig is.

Die grond wat in die blikke geplaas word is enige gemiddelde ligte tipe met kompos of blaargrond, ook 'n bietjie beenmeel. Die Proteaceae haat kalk, d.w.s. die grond moet suur wees. Die blikke moet soos gewoonlik goed gedreineer word.

Wanneer die saailinge in blikke geplaas word moet die saadlobbe net bo grondhoogte gelaat word. Dit is ook raadsaam om die groeiende punt van die penwortel af te breek as dit nie reeds gebeur het met die uitlig uit die saadbed nie. In elk geval sal 'n klein vermindering in lengte van die penwortel, as dit oormatig lank is, nie

enige kwaad aanrig nie. Die gevolg sal wees dat dit 'n veselagtige wortelstelsel sal aanmoedig asook dat dit die oorplanting sal vergemaklik. Besproeiing moet versigtig gereguleer word daar oortollige vog op hierdie stadium grootskaalse afdamping mag veroorsaak.

Soos die plantjies geleidelik groter word kan besproeiing ooreenkomstig vermeerder word. In die middel van die somer kan die intensiteit van die hitte en die vinnige uitdroog van die blikke ingekort word deur die plante onder 'n latwerk-beskutting te plaas (latte moet taamluk wyd gespasieer wees sodat plante ongehinderd kan opstoot).

Uiteindelik moet die groeiende punt van die jong plantjies verwyder word (behalwe silwerboom) om die bosagtige karaktertrekke aan te moedig. Soorte soos *Protea cynaroides* en *Mimetes lyrigera* wat natuurlikerwys van die voetendeel vertak, het nie hierdie besnoeiing nodig nie.

Teen die end van die somer is dit verkieslik om die jong plantjies geheel en al in die ope te plaas om die groeiproses te versterk. As hul tekens van uithongering in die blikke toon kan 'n bietjie voeding gegee word. Daar moet teen gewaak word dat die wortels nie bokant die grond uitstoot nie en wortels moet verwyder word sodra hul bokant die grond verskyn.

UITPLANT. Die jong plante in blikke word uitgeplant wanneer hulle 'n jaar oud is. In die Boland val dit saam met die aankoms van die reënseisoen in die herfs, maar elders moet gereeld natgegooi word op daardie tydstip om die nuut uitgeplante plante deeglik te laat vaswortel.

Voordat daar gepoog word om die plante uit hul houers te haal moet hul eers deeglik natgegooi word. Wanneer hul uit konfytblikke gelig word kan die bodeel van die blik effens saamgepers word, waarna die onderste rant 'n paar skerp rapse met die troffel ontvang om die uithaal van die plant ongeskonde te vergemaklik.

Die gate vir die ontvangs van die plante moet vooraf voorberei word deur grond tot die diepte van 'n graaf uit te spit en die onderste laag in die gat op te breek, net die innenging van 'n bietjie blaargrond of kompos, waarna die bogrond teruggeplaas word en op dieselfde manier verryk word, plus 'n bietjie beenmeel en/of 'n stoffering van superfosfaat. Inplant moet stewig geskied.

Aangesien die meeste soorte Suid-Afrikaanse Proteaceae teen die hange van berge of koppies in goed gedreineerde toestande groei, het die ondervinding geleer dat die beste resultate in die teelt van hierdie klas 'n goed gedreineerde leemgrond is. Slegs in uitsonderlike

gevalle, soos *Orothamnus zeyheri* en 'n paar ander, word vleitoestande verlang. Die oorgrote meerderheid verlang volle sonlig. Onder teling is peste en siektes gelukkig nie uitermatig lastig nie. Oor die algemeen gesproke is die aanpassingsvermoë van hierdie familie in verskillende grond en toestande merkwaardig. Hulle blomtydperk breek ook redelik gou aan, volgens soort, na die saai van saad.

„IN SITU” SAAI VAN SAAD. Vir tuiniers wat nie in staat is om die saadbed- en blik-metode soos hierbo beskryf te gebruik nie, is dit moontlik om hierdie metode te wysig deur die saailinge direk van die saadbeddens te

plant in hul permanente posisies, of anders deur die saad *in situ* in voorbereide posisies te saai waar die plante permanent gaan bly. Drie sade moet in elke plek gesaai word en enige gevolglike oorskot kan oorgeplant word—onthou dat dit vroeg gedoen moet word.

Maar terwyl *in situ* saai arbeidbesparend mag blyk te wees is daar minder beheer oor die voorspoed van saailinge. Eweneens het die saai van saad in potte, kisties of blikke sy nadele; die ondervinding het geleer dat met uitsondering van een of twee soorte, hierdie laasgenoemde metode onbetroubare resultate meebring aangesien wisselings in warmte en vogtigheid goeie resultate belemmer.

WILD FLOWER SHOW 1960

SPECIAL REMINDER!

Our show this year will be held on Saturday, 24 September, and not on the same day as the annual gathering of members as in former years.

Please enter as many exhibits as possible and send in your completed entry form (copy of schedule enclosed in this journal) not later than Thursday, 22 September.

Some Recently Described Succulent Plants from the Cape Province

By H. HALL

WORLD renowned though our succulent flora is, the final story has yet to be written. Year by year plant collectors bring in unknown specimens from regions less inaccessible than in former years, others surprisingly from places much nearer home. In a number of instances recently collected plant material has been useful in matching specimens which were incomplete in one way or another, preserved in herbaria for varying periods of time, and which have eventually helped to clarify uncertainties.

The majority of these new names belong to the *Mesembryanthemum* group and most of them have been found in the western half of the Cape Province. The fact that there are now almost 3,000 different species of 'Mesems' is a forceful reminder of the immense richness and variety of the succulent flora of this country. All the genera mentioned here belong to the 'Mesems'.

Their descriptions have appeared in one or other of the following publications during the past six or seven years:

Notes on Mesembryanthemum and Allied Genera, University of Cape Town; the *Journal of South African Botany*; *Flowering Plants of Africa*.

Others have appeared in various periodicals devoted to succulent plants in England, Germany, Holland and the U.S.A.

species	species	species
Acrodon . . . 1	Conophytum . . 28	Kensitia . . . 1
Aloinopsis . . 2	Delosperma . . 8	Lampranthus . . 8
Anisocalyx . . 1	Dorotheanthus . 3	Lithops . . . 3
Aridaria . . . 6	Drosanthemum . 6	Namaquanthus . 2
Astridia . . . 1	Gibbaeum . . . 1	Ophthalmophyl- lum 1
Caryotophora . 1	Glottiphyllum . 3	Ottosonderia . . 2
Conicosia . . . 2	Herrea 20	Ruschia 20
Conophyllum . 5	Jacobsenia . . . 1	Schwantesia . . 1

For simplicity the genera listed above are arranged alphabetically, the number of species stated being only

an approximation, especially for the large genera like *Aridaria*, *Conophytum*, *Delosperma*, *Lampranthus* and *Ruschia*.

Some half-dozen new genera have been added to the already large number separated, during the past forty years, from the old *Mesembryanthemum*. These are: *Anisocalyx* L.Bol., *Jacobsenia* L.Bol. et Schwant., *Caryotophora* Leistn., *Kensitia* Fedde, *Mimetophytum* L.Bol., *Namaquanthus* L.Bol., and *Ottosonderia* L.Bol.

The *Astridia* is included here although it was actually found on the South West African side of Sendelings Drift and, so far as is known, does not occur on the Richtersveld side, because the only other known species (*Astr. velutina*) occurs freely on both sides of the Orange River. Furthermore, there are, as is to be expected, close affinities between many other plant forms of these two areas, separated as they are only by the extremely arid valley of the river. A fair number are, in fact, common on both sides.

Kensitia is a new name erected to replace the monotypic *Piquetia pillansii* (from the Piketberg) which, for technical reasons, was found to be invalid. In having showy flowers with spoon-shaped petals it is quite unique and cultivators will relinquish 'Piquetia' only after considerable regret.

The type species of *Namaquanthus* (*N. vanheerdei*), a low, fleshy leaved shrub from Namaqualand, has one of the finest flowers in the entire 'Mesem' group. The only other species so far known (*N. farinosus*) flowered in Kirstenbosch for the first time after thirteen years in cultivation. It was collected by Major Woolley near Port Nolloth and is a low, dense shrub with very fleshy leaves. The flowers are not showy but the plant is noteworthy in being one of the very few 'Mesems' known to the writer with distinct powdery leaves, hence the specific name.

Harold Porter Botanic Reserve

By OLIVE M. PORTER

THE picturesque area of 400 acres at Betty's Bay, Hangklip, known as Harold Porter Botanic Reserve, is now under the administration of Kirstenbosch. Formerly known as Shangri-la, it is one of the most extensive wild-flower nature reserves in the Union of South Africa.

Flora capensis is naturally the chief consideration; strenuous efforts are being made to preserve the glorious wild flowers, flowering shrubs and trees indigenous to the Cape. Towering, colourful verdure-clad mountain heights provide a magnificent background as well as a waterfall; many streams, rills, pools, and dells add to the charm. Below Shangri-la waterfall is a dense indigenous forest, which, in other times, was known as 'Leopard's Kloof' then, later, 'Hemel op Aarde'.

The nature reserve ground from the mountain base slopes gently southwards, with an eastern aspect. The main entrance gates will lead off the main road. It is hoped to erect a suitably placed pylon to the memory of the founder.

From every vantage-point even away across the ocean to the far horizon, there are beautiful vistas of landscape and seascape.

The late Harold N. Porter must surely have experienced an ineffable joy when on Arbor Day 2 October 1950, he turned the first sod in this lonely place.

During January 1945, a devastating conflagration on Hangklip Beach Estates laid bare great tracts of land. Most of the area of the Reserve, densely covered with scrub and bush, was then fully exposed for the first time

in living memory. This area had been included in Betty's Bay Township plan for the selling of residential plots.

With calculating eye and enthusiasm romping away to the fulfilment of his obsession, Harold Porter gleefully trudged over smouldering embers and ashes, formulating an inspiration which would lead to the beginning of Shangri-la and fulfilment for the preservation of our adored flora, together with cultivation of indigenous vegetation from other parts of the Cape.

By careful thought and skilful management he acquired the Reserve area on a trust basis: he had pledged to spend over £1,000 yearly on its development.

Some few residents, observing twenty convicts clearing the bush, jumped to mistaken conclusions without sensible investigations, whereupon all residents (with the exception of the Porters) were notified to attend a local private protest meeting. This episode led to a public meeting held at Claremont recreation hall.

At this gathering the Chairman of Hangklip Beach Estates fully explained all Shangri-la conditions to an incredulous, much interested audience. Thus, like all pioneer efforts our wild-flower garden has suffered frustration, failures, losses, expenses, many successes . . . and many pleasures.

Shangri-la Nature Reserve was officially opened on 13 November 1955 by Professor H. B. Rycroft and Harold Porter.

A contour path, engineered by Harold Porter, leads to the summit of the mountain saddle—an impressive walk indeed! May it, together with Shangri-la, Live for Ever!



Harold Porter.

Stories for a Thousand and One Nights

ON the 47th birthday of the Botanical Society, 10 June 1960, our President, Mr. Dudley D'Ewes, was a speaker in the 'Friday Night at Eight' broadcast of the South African Broadcasting Corporation. This is the text of the lyrical talk in which he reviewed Conrad Lighton's *Cape Floral Kingdom*:

There has been warm mental comfort for me all through the week of drenching rain we have just had in the Cape: while pulling on my waterproof trousers and frou-frouing my way up the streaming street, while trying to prevent the water from running off my hat on to my book in the train, and while trying to keep my glasses clear of mist and raindrops, half my thoughts have been on the mountain tops and the slopes where the wild flowers were getting their second and decisive soaking of the season. Now they will be able to maintain the flying start given them by the early April rains. I don't usually prophesy, but I feel almost safe in saying to people in other parts of the Union: if you want to see our Cape flowers at their best, come and visit us next Spring—say in September.

Now all sight-seeing is more enjoyable if you have done a bit of homework. And it is a happy coincidence that on the birthday of the Botanical Society of South Africa (it was founded on 10 June 1913) I am able to tell you about a new book that combines homework with reading pleasure, and will vastly increase your sight-seeing pleasure later on.

The book is called *Cape Floral Kingdom*. It is written by Conrad Lighton, and published by Juta.

This is not another gardening book. It is not another flower book with diagrams or coloured pictures to show you what is a Protea and what is a Polygala. It is a book that tells the story of our flora.

And don't mistake me: the story of a flora may be as fascinating as the flora itself. To give a humble example: In my garden I have an *Aloe pluridens* in bloom now, with seven perfect spikes of bright red flowers lightening the gloom of a dull, dank week of Cape wintry rain. Whenever I see it I remember the exact spot where I collected the plantlet, then only a

foot or so high, on my sister's farm, far away in the Alexandria district of the Eastern Cape. Since that is the district where my father's father and mother set up their home when they arrived with the 1820 Settlers, there are many emotional overtones associated with that Aloe.

Conrad Lighton, out of a vast and well-remembered body of reading on the Cape flora and everything associated with it, has told some of the stories—all the main stories—of the first Europeans to collect wild flowers here, of the first explorers in the Cape, of their connections with the great Linnaeus and other dominating botanical characters of the past three centuries. Then, coming nearer to our own time, he tells of the conservationists, many of whom were reformed exploiters.

That often happens, you know. Former hunters take to the camera. For the same reason people who used to pick immense quantities of wild flowers for vulgar display at shows have turned into ardent protectionists and, better still, ardent growers of wild flowers.

One of the most cheering developments in the last ten years has been the immense spread of the cult of wild-flower gardens, or wild-flower sections in ordinary gardens, as well as the growing eagerness of local authorities all over the Cape to create nature sanctuaries and, what's more, to spend money on developing them.

I don't think it is simply pride in a society with which I am closely associated which makes me say that the Botanical Society of South Africa and the National Botanic Gardens at Kirstenbosch are mainly responsible for this development. Anyway, Mr. Lighton gives them full marks. He does more: he tells their full story, as well as the story of the explorers, of the stories behind the names given to many of the flowers, and the proud story of the contributions that the Cape flora have made to the gardens of the world—the Nerinas, for example, the Gladioli, the Barberton Daisies, and a host of others.

These are stories for a thousand and one nights, just as our flora has jewels for a thousand and one days of visual delight. And Mr. Lighton is an eloquent and informed guide to all this world of beauty.

Notes from a 'Members' Evening'

After the Annual General Meeting of the Society held on 22 March 1960 several members of the Society spoke of their experiences in growing our wild flowers.

These talks, which were accompanied by demonstrations and colour slides, proved of so much interest that it was felt that other members would like to have a summary of them. They were: Mrs. M. L. Thomas—'Indigenous Bulbs'; Mrs. A. C. Parkes—'*Gladiolus blandus*'; Col. H. A. Baker—'*Ericas*'.

'INDIGENOUS BULBS'—Mrs. M. L. Thomas

Raising and maintaining a stock of bulbous plants is exacting but rewarding work in the long run. Compared with the larger number of shrub nurseries and the greater availability of seeds, Mrs. Thomas emphasized the scarcity of bulb-growers and the difficulties of obtaining adequate stocks of bulbs and seeds. Furthermore, moles destroy valuable stocks of bulbs overnight.

Ixias, *Tritonias*, *Sparaxis* and *Freesias* have been widely known overseas for many years and have been considerably hybridized. Lesser known in this regard are *Babianas*, *Romuleas*, *Geissorhiza* and *Lapeyrousia*, and it is Mrs. Thomas's aim to build up a stock of these.

A healthy, well-drained and well-nourished soil is essential, with a good layer of compost and some bone-meal well worked in. Manure and fertilizers are not recommended. The ground should be prepared a month or more before planting time, which, in the Cape, is March and April.

The bulbs are planted in rows which are 9 inches apart and 4 to 6 inches deep in which a thick layer of coarse white sand is sprinkled, this assisting in drainage and marking the position of the bulbs when lifting time arrives. Dwarf annuals are planted between rows to add colour and these act as a mulch in summer.

Every second year the bulbs are lifted and stored on wire trays, etc. in a cool, well-ventilated shed. Seeds should be sown March-May in tins or in drills in beds and should remain undisturbed for their first year. Some *Gladioli* will flower in their second year of sowing.

'GLADIOLUS BLANDUS'—Mrs. A. C. Parkes

In November 1957, Mr. and Mrs. Parkes purchased some property in Constantia on which, growing wild, and much larger than they had imagined, was *Gladiolus blandus*. There and then Mrs. Parkes decided to grow this indigenous species on a grand scale.

Two ounces of seed were collected, half of which was sown in a mole-proof bed and the other half scattered in an area of 5 feet by 4 feet. Two years later 10,500 corms plus several thousand baby cormlets were dug up from this area of 20 square feet. Many cormlets were then of flowering size. The deeper the corm, the larger it became. One specimen was 10 inches deep, in hard ground and bore fourteen flowers.

Gladiolus blandus is a prolific seed producer, 60-80 seeds to a pod, and sowing tests proved they gave 80 per cent germination. Their flowering time and flower colour are variable. A good layer of compost was said to be important but dried leaves were unsatisfactory. Mrs. Parkes concluded her remarks by emphasizing that *Gladiolus blandus* should not be watered once it starts to flower, otherwise rust appears, and when cutting, leave as much foliage as possible to help nourish the corm for future years.

'ERICAS'—Col. H. A. Baker

The genus *Erica*, said Colonel Baker, is represented in South Africa by about 500-600 different species and in the Cape Peninsula alone there are about 100, of which 22 are endemic. To those who have said, when Colonel Baker has been on a mountain climb in winter, 'Oh! but there are no flowers out now', he has guaranteed to collect twenty specimens on an average walk at any time of the year.

To the layman the best known is *Erica cerinthoides*, found nearly everywhere, which, appears to thrive following veld-fires. *Ericas* vary from moss-like little plants of damp places to quite large trees, difficult and complicated to determine by the non-botanist but, which for the layman, can be divided into three main groups: (1) long-tubed flowers pollinated by birds, (2) smaller flowers of various shapes usually pollinated by insects, and (3) minute flowers, usually wind-pollinated and having large exerted stigmas to catch the wind.

Some of the species endemic to the Peninsula are found only in marshes at the head of mountain-streams and often have a general resemblance as though derived from a common ancestor, when the world was largely marsh. One or two rock-dwellers are rare and choosy, and examples were given where they were confined to very small outcrops, not otherwise seen on apparently similar rock formations near by.

THE BOTANICAL SOCIETY OF SOUTH AFRICA

ANNUAL REPORT FOR THE YEAR ENDED 31 DECEMBER 1959

IT is with pleasure that your Council presents the Forty-sixth Annual Report of this Society recording, as it does, another successful year.

FINANCIAL. The Balance Sheet of the Society fully details the financial position. Expenditure during 1959 was higher than in former years but this, however, is to be expected from time to time for, as the Society grows, running costs inevitably increase. In view of the higher expenses, it is regretted that the grant to the Trustees of the National Botanic Gardens is £259 9s. 10d. less than the record grant of the previous year. It is very gratifying, however, to record that this in no way reflects unfavourably on the membership of the Society which has again increased, by means of which an additional amount of £190 2s. 10d. was received in subscriptions. The total income of the Society for the year was £4,287 1s. 4d. Of this £390 1s. 10d. was received in donations for which we are most grateful. Expenditure was £1,583 5s. 4d. leaving a balance of £2,703 16s. 0d. which is the Society's grant to the National Botanic Gardens in respect of the year. Cash assets at the year end including the balance in the Life Members' Fund of £3,385 8s. 9d. are £3,724 18s. 10d. in savings banks and on call, and £2,514 9s. 6d. placed on fixed deposits.

DR. BERNARD PRICE BEQUEST FUND. This will disappear from future Balance Sheets. In the 1958 accounts we showed on the assets side Office Extensions £617 15s. 7d. against the Bequest. This has now been written off against the bequest of £827 10s. 0d. and the balance of £209 14s. 5d. has been applied as a contribution to writing down the addressograph equipment. This Bequest has been of substantial benefit to the Society in allowing for certain definite needs which have called for attention in the extension of the Society's operations.

MEMBERSHIP. Total membership of the Society is now 3,343. A warm welcome was extended to 508 new members who joined during the year, this is a record enrolment for any one year to date. It is regretted, however, that we have to record the resignations and deaths of 73 members while 241 who were two or more years

overdue with their subscriptions had to be struck off the roll. Net gain in membership for the year, 194.

ANNUAL WILD FLOWER SHOW. This was held on 3 and 4 October and again proved very successful in that more members entered exhibits, all of which were of a higher standard than previous years. Owing to restricted space in the Lecture Hall extra equipment such as tents etc. have always to be hired. This naturally adds to the cost of staging such shows. As a result there was a deficit of £26 13s. 4d. this year. The Show Committee feels, however, that such a loss is more than compensated by the good propaganda obtained and the ultimate enrolment of new members. Mrs. J. Newton Thompson, Cape Town's first Lady Mayor, graciously opened the Show and stayed to lunch.

'WILD FLOWERS OF THE CAPE OF GOOD HOPE.' Sales of this book continue very satisfactorily. A cheque for £300 was handed to the Trustees of Kirstenbosch in respect of sales during the year; this brings the total cash paid to the Trustees to date to £2,575. There remains a stock of 3,333 books.

JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA, PART XLV, 1959, edited by Professor H. B. Rycroft was distributed to all Members, Learned Institutions and the like.

BRANCHES OF THE BOTANICAL SOCIETY. Interest has been shown by some Regional Members in the possible formation of a branch of the Society in their respective areas. Such interest has been greeted with enthusiasm by the Council and although no definite move in this direction has yet taken place, it is hoped that Regional Members will be sufficiently interested to pursue the idea.

FIRST PATRON. While on a visit to South Africa Mrs. David Rockefeller became the Society's first Patron on payment of £100. This is a new class of membership allowed for in the new Constitution.

UNION FESTIVAL YEAR. The postal authorities were approached to feature Kirstenbosch on any special issue of stamps to commemorate Union. They very much

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

regretted, however, that it was not possible to accede to this request.

RETIREMENT OF MISS M. E. JOHNS. It was with very sincere regret that we had to record the retirement of Miss Johns at the end of December after being Nature Study Teacher at Kirstenbosch since 1933. The Society was instrumental in arranging an appropriate farewell gesture to her which took the form of a garden party on the lawn at Kirstenbosch, at which the Deputy Superintendent-General of Education in the Cape, Mr. G. J. J. Smit, was the Guest Speaker. Local societies, together with some schools, were represented at this function during the course of which Miss Johns was presented with a pair of binoculars and a cheque for £100 on behalf of all present.

SOCIETY EMBLEM. As reported last year, designs for a suitable Society Emblem were being considered. A design submitted by Capt. M. F. Stern, Member of Council, was finally agreed upon, and in due course this will feature on the Society's letterheads, etc.

SEED DISTRIBUTION. 20,813 packets of seeds were distributed to Members by the Gardens during the year, which is a record.

MEETINGS OF THE SOCIETY. Ten meetings for Members were held. These included visits to Members' gardens, the annual visit to the Karoo Garden, the Annual Gathering of Members at Kirstenbosch and the Wild Flower Show, as well as interesting talks by eminent speakers.

OFFICE-BEARERS, 1959. The following were elected

at the Annual General Meeting of the Society held on 24 March:

President: Mr. Dudley R. D'Ewes.

Vice-Presidents: Mr. C. J. Sibbett, Professor R. H. Compton, Professor H. B. Rycroft.

Council Members:

Mr. W. R. Baylis	Mr. J. S. Linley
Dr. G. J. Broekhuysen	Dr. C. A. Lückhoff
Mr. M. Clough	Mr. S. Macpherson
Professor W. E. Isaac	Mr. W. J. Middelman
Dr. W. P. U. Jackson	Dr. J. S. Griffiths
Miss M. E. Johns	Mr. A. J. A. Simpson
Dr. G. J. Lewis	Miss E. L. Stephens
	Captain M. F. Stern

APPRECIATION. The Council of the Botanical Society of South Africa hereby records its sincere thanks to everyone who has helped in any way to further the interests of the Society during the year. In particular to Dr. and Mrs. S. H. Skaife and General and Mrs. K. R. van der Spuy for kindly entertaining Members of the Society in their respective gardens and giving them tea. Also to all speakers at our meetings and helpers at the Wild Flower Show. Grateful thanks also to the daily press and the South African Broadcasting Corporation for their usual helpful co-operation at all times, and to the Cape Provincial Administration for the use of its rooms for meetings of Council during the year.

MILTON CLOUGH

Chairman

(MRS.) W. N. HALL

Hon. Secretary/Treasurer

Wild Flower Protection Society Committee

ANNUAL REPORT FOR THE YEAR ENDED 31 DECEMBER 1959

Annual Report of the Wild Flowers Protection Committee, Botanical Society of South Africa, for the year ended 31 December 1959.

Regular and well-attended meetings of the Committee were held during the year.

FINANCIAL. The finances of the Section as detailed on the Balance Sheet remain sound and very encouraging as witnessed, among other things, by an amount of £394 13s. 0d. received in members' subscriptions, an increase of £66 19s. 6d. over the previous year. Particular and important items of expenditure were two grants to the Trustees of the National Botanic Gardens, namely £263 5s. 0d. being part cost of fencing the Cape Flats Flora Reserve, and £60 towards maintenance costs of the Betty's Bay Reserve. In addition a grant of £205 2s. 2d. was paid to the Botanical Society towards the cost of an addressograph machine and equipment. Of recent years the work of the Section has increased so considerably and encroached more and more on the time and work of the Society that such expenditure is not only warranted but very necessary in order to ensure the smoother and more efficient running of the Society as a whole.

CONTROL OF ALIEN VEGETATION COMMITTEE. This Committee, inaugurated under the Section during 1958, has been very active during the past year. Its activities have combined personal visits together with suitable propaganda, to municipalities and similar bodies stressing the need to control the spread of alien vegetation, one of the greatest threats to our indigenous flora. In addition, exhibitions have been staged at various centres and many 'wattle hacks' have been held locally resulting in the clearance of badly infected areas. The Committee being mindful of its heavy responsibilities, and in an effort to enlarge its scope, requested and obtained permission from the Botanical Society, i.e. the parent body, to establish its own Constitution with effect from November 1959. The year's activities culminated in the publication of a booklet entitled *The Green Cancers in South Africa*. This work, sponsored by the Botanical Society and by Rotary, is a very informative one with text in both official languages and

excellent line-drawings. Grateful thanks are here recorded to the Judge-President of the Cape, The Hon. Mr. Justice A. B. Beyers, for kindly writing the foreword to the book, and to Mrs. M. M. Kidd for her line-drawings, and to all members of the Committee and others who helped compile this work. Special thanks also to Rotary for being part-sponsors of the book. All Members of the Society have been circulated with a copy and it is intended that circulation shall be nationwide.

ADVISORY COMMITTEE FOR NATURE CONSERVATION. Professor Rycroft again represented the Section at this meeting in April in Kimberley. Among the recommendations put forward and accepted was the need to place all Proteas on the protected list, in view of the wide havoc being caused by illicit flower-pickers and veld-fires.

CONTRAVENTIONS AGAINST THE WILD FLOWERS PROTECTION ORDINANCE. Our officer, Mr. H. D. W. Meyer, has been actively engaged on his visits of inspection to nurserymen and their sites as well as to local flower-sellers. He has advised and warned offenders before prosecuting, thus carrying out the policy of the Section which is loath that action be taken unless absolutely necessary, preferring always to guide and educate in the matter of wild-flower protection. The number of offenders brought before the courts during the year was 25, a very pleasing decrease of 23 over the previous year. Most of the offenders were guilty of failing to renew their licences or complying with the necessary regulations. Such offences though seemingly unimportant inasmuch as no actual destruction of flowers takes place, can lead to very serious trouble as no check can be kept on the purchase and sale of wild flowers, an extremely necessary item.

OFFICE-BEARERS, 1959. *The following were elected:*

Miss M. E. Johns	Mr. H. A. van Hoogstraten
Mr. V. Karg	Mr. A. J. S. Simpson
Mr. J. S. Linley	Professor H. B. Rycroft
Dr. C. A. Lückhoff	Mr. S. Macpherson
	Mr. H. D. W. Meyer

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

Professor Rycroft was re-elected to the Chair at the first meeting of the Committee.

THANKS. Appreciation is hereby recorded to the Cape Provincial Administration for kindly co-operation throughout the year, also for kindly allowing Mr. Meyer to accompany its officials on visits of inspection to nurseries. The daily press and the South African

Broadcasting Corporation are also warmly thanked for their ever-ready help and assistance at all times.

H. B. RYCROFT

Chairman

(MRS.) W. N. HALL

Hon. Secretary/Treasurer

Seed Distribution, 1961



Your copy of the 1961 seed list is enclosed with this Journal, together with an addressed envelope to the Director, National Botanic Gardens. Members are reminded that seeds are only distributed from January-April and during the month of September each year. It is sincerely regretted that seed requests received after these dates cannot be dealt with until the next distribution period. Your kind attention to this would greatly help the staff at Kirstenbosch and would eliminate a great deal of correspondence which, owing to the number of requests received, is quite impossible to deal with. Please, therefore, do not forget to send in your request for seeds at the correct time!

THE BOTANICAL SOCIETY OF SOUTH AFRICA

BALANCE SHEET as at 31 DECEMBER 1959

	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Life Membership Fund												
Balance 1/1/1959	2,994	9	3	3,385	8	9						
Add amount received during 1959	390	19	6									
Subscriptions Paid in Advance ..				374	9	11						
Dr. Bernard Price Bequest Fund ..												
Balance 1/1/1959	827	10	0									
Less office extensions												
now written off £617 15 7												
„ contribution to												
Addressograph												
written off .. 209 14 5				827	10	0						
National Botanical Gardens ..				2,703	16	0						
Surplus for the year.												
Wild Flower Protection Section ..				6,463	14	8						
Balance as at 1/1/1959	1,634	7	8	1,293	9	11						
Grant from Provincial Administration	150	0	0									
Subscriptions — Ordinary — received												
during 1959	394	13	0									
Interest received during 1959 ..	36	3	8									
	2,215	4	4									
Less:												
5% of 1959 subscriptions												
credited to General												
Administration expenses £19 14 8												
Salaries	275	0	0									
Stationery, postages,												
travelling expenses,												
bank charges, insu-												
rance, etc.	33	0	9									
Tools purchased	9	13	6									
Depreciation of Equip-												
ment at 10% p.a. ..	29	5	0									
Grants:												
National Botanical Gar-												
dens — Cape Flats												
Reserve	263	5	0									
Botanical Society of S.A.												
— Betty's Bay Reserve	60	0	0									
Addressograph	205	2	2									
Wild Flower Show loss ..	26	13	4									
	921	14	5									
				£7,757	4	7						
Investments:												
Cape of Good Hope Savings Bank												
Savings A/c No. 52773 at 4% p.a.							1,037	7	1			
Post Office Savings Bank ..							98	9	6			
Savings A/c No. 5803 at 3% p.a.												
United Building Society							1,964	7	8			
Fixed Deposit C.T.G. 21516 with												
accrued interest at 5% p.a. ..	760	4	9									
Savings A/c No. 536 at 3½% p.a. ..	1,204	2	11									
S.A. Permanent Building Society							1,754	4	9			
Fixed Deposit F.96168 with accrued												
interest at 5% p.a.	618	2	2									
Fixed Deposit F.97344 with accrued												
interest at 5% p.a.	1,136	2	7									
Cash							1,384	19	4			
Current A/c at Standard Bank of S.A.,												
Ltd.	1,414	5	0									
On hand	7	9	4									
	1,421	14	4									
Less liabilities	36	15	0									
Miscellaneous Assets							224	6	4			
Amount due from Wild Flower Protec-												
tion Section	19	14	8									
Addressograph	204	11	8									
Cost	£619	8	3									
Less:												
Grant from Wild												
Flower Protection												
Section .. £205 2 2												
Grant from												
Dr. Bernard												
Price Bequest												
Fund .. 209 14 5												
	414	16	7									
Wild Flower Protection Section ..				6,463	14	8						
Investments:				1,293	9	11						
S.A. Permanent Building Society:												
Fixed Deposit F.95683 with												
accrued interest at 5% p.a. ..	384	17	5									
Fixed Deposit F.95297 with												
accrued interest at 5% p.a. ..	175	14	2									
Fixed Deposit F.95298 with												
accrued interest at 5% p.a. ..	203	7	1									
Cash:												
Current A/c at Standard Bank of												
S.A., Ltd.	285	14	8									
On hand	3	3										
Equipment — at cost less depreciation	263	8	0									
Film projector, screen, etc.:												
Cost	£401	4	0									
Less aggregate de-												
preciation	137	16	0									
	1,313	4	7									
Less amount due to General A/c	19	14	8									
	£7,757	4	7									

Referred to in our Report of even date.

CAPE TOWN
30th January, 1960

R. M. JOUBERT & CO.
Chartered Accountants (S.A.)
Auditors

INCOME and EXPENDITURE ACCOUNT for the Twelve Months ended 31 December 1959

PAGE TWENTY-EIGHT

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

JOURNAL OF THE BOTANICAL SOCIETY: BACK NUMBERS

The following Parts are obtainable at the prices shown. The principal contents are mentioned below: each part also contains full-size Plates, News and Notes, Reports, etc.

Price to Members of the Botanical Society 2/6; to non-Members 3/6

Part	XXI.	Aloe Marlothii: Some Forms and Hybrids. Lawn Grasses on Trial at Kirstenbosch. How to form a Garden Library. South African Conifers for Garden Use. From New York to Kirstenbosch and Back.	G. W. Reynolds. J. W. Mathews. L. B. Creasey. J. W. Mathews. S. V. Coombs.
„	XXII.	South African Succulents at Kew. An Old Cape Frontier. Our Wild Flowers and Their Protection.	Sir Arthur Hill. E. A. Walker. F. Guthrie.
„	XXVII.	Weeds: The 'New' Cape Flora. Drug Plants.	R. S. Adamson. F. W. Thorns.
„	XXVIII.	The Herbarium of the National Botanic Gardens, Kirstenbosch. Nature Study in the Forests at Kirstenbosch.	R. H. Compton. M. E. Johns.
„	XXXI.	Cape Annuals for the Garden. A Plea for South African Trees.	F. W. Thorns. D. R. D'Ewes.
„	XL.	Seaweeds. An Australian Plant Propagator looks to South Africa for new plants for Australian Gardens. Growing Proteaceae in the Summer-rainfall Area. Some South African Biennials and near-Biennials and their Cultivation. Some impressions and reflections of a Plant Collector.	W. E. Isaac. T. A. Browne. M. M. Vogts. H. F. Werner. T. P. Stokoe.
„	XLIII.	Propagation and Cultivation of Heaths. Notes on some rare Stapelias from Namaqualand. The Cultivation of some Ericas in New Zealand.	H. F. Werner. H. Hall. W. R. Stevens.
„	XLIV.	Birds of the National Botanic Gardens of South Africa. Gasteria—A Problem Genus of South African Succulent Plants.	G. J. Broekhuysen. E. A. C. L. E. Schelpe.

THE BOTANICAL SOCIETY OF SOUTH AFRICA

OBJECTS:

1. The promotion of the interests of the National Botanic Gardens of South Africa established under the Trustees of the National Botanic Gardens of South Africa.
2. The preservation of the native flora of South Africa. The Society therefore endeavours:
 - (a) To encourage the people of South Africa and other countries in the progress and development of the National Botanic Gardens of South Africa at Kirstenbosch, and any other Garden that may be established by the Trustees of the said National Botanic Gardens of South Africa.
 - (b) To augment the Government and other grants towards developing, improving and maintaining the National Botanic Gardens of South Africa at Kirstenbosch and any Garden referred to in the preceding subsection.
 - (c) To organize shows at which may be displayed the results of botanical experiments of cultural skill in improving the different varieties of South African flora.
 - (d) To enlighten and instruct on botanical subjects by means of meetings, lectures and conferences and by the distribution of literature.
 - (e) To promote the preservation of the native flora of South Africa, to encourage public interest in it, and to co-operate with the Public Authorities and others in the attainment of this object.

FOUNDED 10 JUNE 1913

President: Mr. DUDLEY R. D'EWES

Vice-Presidents: Mr. C. J. SIBBETT; Professor R. H. COMPTON; Professor H. B. RYCROFT

Chairman of Council: Mr. MILTON CLOUGH

Hon. Secretary and Treasurer: Mrs. W. N. HALL

Council:

Dr. G. J. Broekhuysen
Mr. M. Clough
Dr. J. S. Griffiths
Mr. H. A. van Hoogstraten

Professor W. E. Isaac
Dr. W. P. U. Jackson
Miss M. E. Johns
Dr. G. J. Lewis

Mr. C. Lighton
Mr. J. S. Linley
Mr. S. Macpherson
Mr. W. J. Middelmann

Miss E. L. Stephens
Capt. M. F. Stern
Mr. A. J. A. Simpson

Terms of Membership:

Benefactors, subscribing not less than £500 over a period of two years or less.

Patrons, subscribing not less than £100 in one payment.

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Honorary Members may be elected at a Meeting of the Society on the nomination of the Council.

All members have the privilege of sharing in the free distribution of surplus seeds from Kirstenbosch and Worcester, on application to the Director of the Gardens. The Journal of the Botanical Society, published annually, is sent free to every Member. The Journal of South African Botany can be purchased by Members at reduced rates.

Members who wish to support the Wild Flower Protection Section of the Society may give an annual subscription of 5s. per annum in addition to the subscription for the class to which they belong. Those wishing to become Members of the Society are invited to communicate with the Hon. Secretary, Mrs. W. N. HALL, Botanical Society of South Africa, Kirstenbosch, Newlands, C.P.

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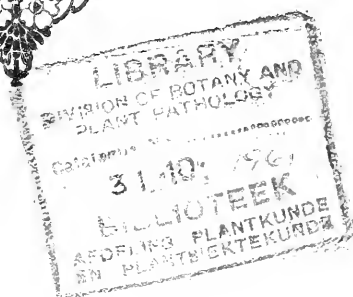
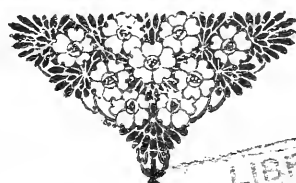


BOTANICAL SOCIETY OF SOUTH AFRICA

Edited by H. B. RYCROFT, M.Sc.,
B.Sc.(For.), Ph.D., F.L.S., Director of National
Botanic Gardens, Harold Pearson Professor of
Botany in the University of Cape Town

Part XLVII

1961



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Photo: Dr. E. A. C. L. E. Schelpe

PLATE 1

Polystachya pubescens Reichb. f.
from the Pirie Forest, Eastern Cape Province

The Journal of the Botanical Society of South Africa

EDITED BY H. B. RYCROFT

PART XLVII

1961

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-
-

News and Notes

KIRSTENBOSCH BROCHURE

At long last there is an official guide to the Kirstenbosch Gardens. Interesting features about the Gardens are described, the flowering times of the more showy plants are listed, the history of the Gardens is outlined, there are sections on Glasshouses, Succulents and the Compton Herbarium, and in the centre is a map of the area.

We are extremely grateful to Mr. Conrad Lighton who is a member of the Society's Council and author of *Cape Floral Kingdom* for taking the main responsibility for the compilation of this brochure.

Copies, at 15 cents each, are obtainable from the Garden's Office, the Botanical Society Office or from the Tea House.

* * *

WILD FLOWER SHOW

The annual Wild Flower Show at Kirstenbosch which was inaugurated in 1955 is now a well-established item in the programme of the Society, and it is very encouraging indeed to note that each year sees a marked improvement both in the quality and quantity of the exhibits staged, every item on the Schedule being represented.

Owing to distances the Show is perhaps more or less confined to exhibits from local members, although this of course need not be the case. We should be particularly happy to welcome entries from our distant members, and all such members need do, therefore, is to rail or mail their exhibits to us and we shall with pleasure stage them.

Competition for the trophies gets keener every year, last year's winners being: Mrs. A. C. Parkes—Mr. & Mrs. Frank Connock Trophy for the best exhibit on the Show (a magnificent display of *Erica macowanii*); Mrs. Joan Pare-Prof. H. B. Rycroft Trophy (decorative class), and Miss Jennifer Pare—B. L. Chambers New Zealand Trophy (best exhibit in the children's class).

His Honour Mr. J. N. Malan, Administrator of the Cape Province, opened the Show and presented the trophies.

This year's Show, which is to be held on Saturday, 23 September, is to be opened by Rear-Admiral H. H. Biermann, S.S.A., O.B.E., Naval Chief of Staff.

DIRECTOR'S VISIT OVERSEAS

During the second half of 1960 Professor H. B. Rycroft was overseas studying the taxonomy and nomenclature of the genera *Protea* and *Mimetes*. His headquarters were at the Royal Botanic Gardens, Kew, where most of his work was carried out. Other institutions that were visited were the British Museum (Natural History), Linnaean Herbarium and Chelsea Physic Gardens in London; the Royal Horticultural Society's Garden, Wisley; Cambridge University; Savill Gardens, Windsor; Oxford University; Royal Botanic Gardens, Edinburgh; as well as many other parks and gardens.

On the Continent research was carried out at herbaria and botanic gardens in Göteborg, Stockholm, Uppsala, Lund, Copenhagen, Hamburg, Berlin, Zürich, Geneva, Paris, Antwerp and Leiden.

Many of these institutions have extensive, valuable and old collections, including many type specimens. Literature on the subject is very complete and consists of many rare books which are not to be found in any library in South Africa. Several taxonomic problems were solved and it appears that the names of at least twelve *Proteas* will have to be changed and eight species will have to be merged with others.

Photographs were taken of most of the *Protea* literature which is not available in South Africa and also of a large number of herbarium specimens. The total number of photographs taken exceeds 2,000.

Many new contacts were made with botanists, all of whom were most helpful, and old friends were seen again. A great pleasure it was to call on Mrs. Pearson, the wife of Professor H. H. W. Pearson, who founded the National Botanic Gardens of South Africa at Kirstenbosch in 1913. Mrs. Pearson is living in Cambridge and was able to relate many interesting facts about the Gardens during the time she lived at Kirstenbosch before her husband's death in 1916.

It was also a real pleasure to meet several members of the Botanical Society both in Britain and on the Continent.

* * *

GOLDEN JUBILEE, 1963

The year 1963 will be an eventful one for the Gardens and for the Society because both will have reached the age of fifty years. We shall be able to sit back and review the difficulties, progress and development of the first

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

half-century and wonder what the next half will have in store for us.

An occasion such as a Golden Jubilee cannot be allowed to come and go without celebrations of some kind. Thoughts are now being directed towards the form the various celebrations should take. Ideas from members would be very welcome and, more particularly, offers of assistance in organizing various functions would be appreciated. Staff is limited and cannot cope with much extra work.

* * *

J. W. MATHEWS TROPHY

The J. W. Mathews Trophy for 1960 was awarded to Miss Gillian Joubert of the Wynberg Girls' High School for the 'best illustrated notes on six indigenous monocotyledons'. The 'J. Sauer van Pletsen' cash prizes were awarded to the runners-up in the competition as follows: Sally Spilhaus (Wynberg Girls' High School), Sally Sturrock (Rustenburg Girls' High School, Rondebosch), Lesley Muller (Collegiate School for Girls, Port Elizabeth) and Brian Huntley (Northlands Boys' High School, Durban).

The Trophy and prizes were presented to the winners on 15 October at the Annual Gathering of the Society at Kirstenbosch.

For this year the Trophy and prizes will be awarded to the scholars who submit the best illustrated notes on 'six species of alien plants which threaten to destroy the indigenous flora of South Africa'.

* * *

KIRSTENBOSCH FLOWERS EXHIBITED OVERSEAS

During the past year, flowers grown at Kirstenbosch and at the Harold Porter Botanic Reserve, Betty's Bay, were exhibited in many parts of South Africa and overseas. Some of the overseas exhibitions were Chelsea, Harringay, London, Paris, United States of America, Rotterdam, Trieste, Turin and Karachi.

For the display at the 'Floriade' in Rotterdam we received a medal and the Trophy of Honour and as a result of the exhibit at the Trieste International Flower Show we received the Diploma of Honour and a gold medal.

When Professor Rycroft was in England he was requested to present a lecture on Proteas at the Linnean Society of London, Burlington House, Piccadilly. Cut flowers to illustrate the lecture were flown to London from Kirstenbosch. They were much admired at the lecture and the next day they were taken to Buckingham Palace.

PAGE FOUR

DEVIATION OF RHODES DRIVE

Mention has been made on several previous occasions on the need to deviate Rhodes Drive to allow it to pass along the lower boundary of the estate instead of through the Gardens as at present. After much negotiation with various authorities, Government and otherwise, it was eventually decided to grant our request and this year the Divisional Council of the Cape commenced with the work.

The deviation of the road will have many important consequences for the Gardens as a whole. For example, a new entrance will have to be carefully designed and constructed. Kirstenbosch therefore has a wonderful opportunity of planning what we hope will be an outstanding feature of the Gardens. Where the money is to be found we do not know but if we hope hard enough and long enough it will come! Some has already been received; £1,000 was bequeathed by the late Dr. W. Duncan Baxter to be used towards the construction of the new entrance. Much more is still required for this and other purposes.

* * *

COMMITTEE OF ENQUIRY

Early this year the Minister of Education, Arts and Science appointed a committee to inquire into the needs of all State-aided Institutions, of which the National Botanic Gardens of South Africa is one. Members of the committee visited Kirstenbosch in May and listened very sympathetically to the pleas made by the Trustees and Director for more adequate funds and staff. Now we can only hope that the committee will draw up a favourable report which will receive the sympathetic consideration of the Government.

* * *

NEW BOOKS

During the last few years several books on wild flowers have been published. Many have dealt exclusively or mainly with the flowers of the Cape. This is understandable because the bulk of the South African flora is concentrated in the Cape. This, however, does not mean that the other provinces do not have beautiful flowering plants.

A book soon to be published is *Wild Flowers of the Transvaal*, which will be available in English and in Afrikaans. There are 174 full-colour plates illustrating nearly 400 different species and notes about each will appear in the text.

A brochure giving details of the publication is included in this Journal.

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

The growing of succulents is the fascinating hobby of many members. They will be interested therefore in the recent publication of *The Genus Monadenium* by P. R. O. Bally. The species of *Monadenium* occur principally in tropical Africa and resemble many of our *Euphorbias* in growth habit. In fact, they belong to the same family of flowering plants.

This is a book for every keen grower of succulents.

* * *

FLORAL MAP OF SOUTH AFRICA

Barbara and Peter Furse who, over a period of many years, have been producing pictorial maps illustrating historical events or other items of interest in various parts of the country have now prepared a map of South Africa surrounded by illustrations of hundreds of wild flowers in full colour.

A prospectus giving full details is enclosed in this Journal.

* * *

C.A.V.

The Control of Alien Vegetation Committee has been very active during the last year. It has arranged several 'hacks' in various places to remove alien plants. To avoid any misunderstanding it might be as well to explain that the C.A.V. does not wage war on every alien species simply because they are not indigenous. The battle is against those alien plants which are encroaching upon and destroying the natural vegetation and which at the same time are of no economic, practical or aesthetic value.

The C.A.V. cry is no longer a lone one in the wilderness. The public in general is becoming more and more aware of the threat to our disappearing natural flora and even the Government is now starting to take notice. Evidence of this is the Conference which was arranged by the Department of Agricultural Technical Services at Stellenbosch in February to discuss the problem of the spread of *Hakea*.

Kirstenbosch is by no means free of harmful and useless alien plants, but a concerted effort is being made

to reduce the numbers of these plants. Our efforts are meeting with success and we hope that within a few years we may be able to claim that the situation is completely in hand.

Wherever aliens have been cleared, indigenous plants have been replaced and during the present year more than 4,000 *Proteas* and *Silver Trees* have been planted in areas previously overrun by alien vegetation.

* * *

NEW SOCIETY FORMED

Interest in cultivating the indigenous plants of South Africa is certainly increasing; to such an extent, in fact, that gardeners are beginning to specialize in growing only certain groups of plants. The vast flora of ours makes this possible.

A society of specialists has now been founded. It is the 'Indigenous Bulb Growers Association of South Africa.' The two main objects of the Association are (a) to encourage the conservation of South African bulbous plants by means of cultivation and propagation so that they may take the place they deserve in gardens in South Africa and elsewhere, and (b) to share experience and knowledge of members and to study problems and aspects of the growing of indigenous bulbous plants.

Anyone wishing to receive more information about the Association should write to Mrs. M. L. Thomas, c/o Dr. Stals Sanatorium, P.O. Stalsana, Westlake, Cape Town.

* * *

POPULARITY OF TEA HOUSE AT KIRSTENBOSCH

News about the excellent fare to be enjoyed at the Kirstenbosch Tea House has spread far and wide, and it can be said that the flowers are not the only attraction to visitors. The Tea House is becoming more and more popular and the hard-working managers, Mr. and Mrs. Fall, find it difficult to cope with all their customers.

The Trustees of the Gardens have seen fit to have the lounge enlarged this year to accommodate visitors more comfortably.

SPECIAL NOTE TO MEMBERS RESIDENT OUTSIDE THE REPUBLIC OF SOUTH AFRICA

Members are kindly reminded that all subscriptions must be remitted in the equivalent South African currency, i.e. Rand/Cents. Please check with your bank or Post Office before remitting. The following is given as a guide:—

Corporate Membership	..	Rand 10.00	(£5.0.0.)
Family .. .. .	..	5.00	(£2.10.0.)
Ordinary .. .. .	..	3.00	(£1.10.0.)

'n Groot Weldoener van Suid-Afrika Oorlede

DEUR PROF. P. G. JORDAAN

OP 17 November 1960 is professor M. H. Gustav Schwantes in Kiel waar hy professor in Duitse Voorgeskiedenis was, in die ouderdom van 79 jaar oorlede.

Professor Schwantes was 'n vooraanstaande op die gebied van die Voorgeskiedenis en een van sy boeke oor die Duitse Voorgeskiedenis beleef tans die sewende uitgawe.

Vroeg reeds is professor Schwantes se belangstelling vir die Suid-Afrikaanse vetplante opgewek en reeds in 1916 het hy begin met publikasies oor die vygiefamilie (*Aizoaceae*). In Hamburg, waar hy eers werksaam was, was die geriewe van die Botaniese Tuin en Herbarium wat onder die Universiteit ressorteer en wat goeie versamelings uit Suid-Afrika bevat het, tot sy beskikking. In Kiel was die groot vetplantversameling van die Universiteit, onder die sorg van die bekende H. Jackson, tot sy beskikking.

Schwantes se uitmuntende werk oor die vygies is moontlik gemaak deur getroue medewerkers hier in Suid-Afrika. Die name van hierdie medewerkers word genoem in sy boek *Flowering Stones and Mid-day Flowers* wat in 1957 verskyn het. Onder die medewerkers was mev. dr. Bolus, mnr. Hall, wyle dr. Lückhoff van Kaapstad, wyle prof. Nel, wyle eerw. Meyer en mnr. Herre van Stellenbosch. Uit Stellenbosch het talle plante uit die ryk versameling van die Botaniese Tuin van die Universiteit na prof. Schwantes gegaan.

Vroeg reeds het Schwantes hom begin toelê op 'n studie van die vrugte van die vygies. By hierdie vrugte het hy talle eienaardighede wat vir die wetenskap heeltemal nuut was en wat die wetenskap vandag nog nie kan verklaar nie, ontdek. In die vrugte kon hy bepaalde boupatrone vasstel en hierdie morfologies-anatomiese kenmerke van die vrugte het hy gebruik as grondslag vir die moderne sisteem van die vygies (*Mesembryanthema*) wat hy opgestel het. Hierdie werk oor die vrugte is ongetwyfeld Schwantes se belangrikste bydrae tot die Plantkunde.

'n Taamlik volledige lys van die publikasies van prof. Schwantes is saamgestel deur Shurly en gepubliseer in die boek *The Cultivation of Mesembryanthemaceae* van Schwantes wat omstreeks 1953 verskyn het. Die mees opvallende publikasie van Schwantes is die reeds genoemde boek van oor die 400 bladsye, *Flowering stones and Mid-day Flowers* wat in 1957 verskyn het. In hierdie boek vertel Schwantes van sy ervaringe met en navorsing oor die vygies. Wie die boek lees kan aanvoel met hoeveel toewyding hy daar ver in die noorde van Duitsland ons vygies gekweek en bestudeer het.

Hoewel Schwantes geen opgeleide plantkundige was nie, het hy so 'n diepgaande kennis en so 'n aansteeklike geesdrif vir die studie van die geheime van die vygies gehad dat in Kiel verskillende studente onder sy inspirasie gevorderde en belangrike navorsing oor die vygies gedoen het—o.m. professor Wulff, dr. Straka en dr. Ihlenfeldt.

Dit was vir my 'n baie groot voorreg om in 1952 met professor Schwantes in Kiel kennis te maak. Sy minsame geaardheid en nugterheid het 'n blywende indruk gemaak. Hoe graag wou hy nie Suid-Afrika besoek en sy velde deurkruis nie. Maar reeds in 1952 het hy besef dat hy te oud geword het vir so 'n veeleisende onderneming.

As hy hierheen gekom het, kon Suid-Afrika dit ernstig oorweeg het om sy ere-skuld aan hierdie groot navorser wat soveel gedoen het om ons eie beter te ken en te verstaan, te vereffen deur 'n ere-doktorsgraad aan hom toe te ken.

In 'n brief wat spreek van diepe erkentlikheid het mnr. Jacobsen van Kiel die berig van professor Schwantes se dood aan mnr. Herre in Stellenbosch oorgedra. Vroeg vanjaar is mev. Schwantes, 'n liefdevolle Noorse vrou, en in Julie ook sy enigste dogter, oorlede. Die eensaamheid moes vir professor Schwantes te veel gewees het want in die laaste paar maande het hy alle belangstelling in die lewe verloor en op 17 November is hy oorlede.

C. A. Lückhoff, M.D.

By H. M. L. BOLUS AND J. LÜCKHOFF

CARL AUGUST LÜCKHOFF was born in Cape Town in August 1914, his younger brother and sister completing the family. His father, Dr. James Lückhoff and his mother, Lilli, daughter of Karl Ritter, were ideal parents and devoted themselves to the nurture and welfare of their children. During school holidays they would be off for a month's freedom in the wide spaces arched with the fathomless blue of the Karoo, Namaqualand and other districts, still young enough to see everything 'apparelled in celestial light'.* There they could explore and revel in the endless variety of wild life, sharing one another's joys and having body, mind and spirit immeasurably enriched by it all. Later on their journeys were extended eastwards and northwards to the Game Reserve, Swaziland, Rhodesia, with Zimbabwe and the Falls, Umtali and Salisbury. These were happy years of full family concord, providing wide and varied experience, and the parents recall them with deep gratitude. One of their most treasured memories of much earlier years was that of the little Carl wandering blissfully in their garden, caressing and kissing the flowers, alone with the busy bees—a lovely manifestation of the thought embodied in one of the loveliest lines in English verse, 'Heaven lies about us in our infancy!'[†]*

My earliest memories of him are those of the wonderful day we spent as guests of Dr. C. L. Leipoldt in an expedition to the Ceres Karoo. Young Carl was in his element and almost danced with joy when he suddenly came upon a fine *Caralluma* (one of the *Stapelieae*) in full bloom—perhaps the first he had seen in its natural habitat. A little later his ardent desire was to study this large group of succulents botanically, and we spent happy hours together discussing them and latinizing his descriptions for publication. Even as a young boy he loved to work and could concentrate to an unusual degree, displaying remarkable intelligence and creative ability.

At that time one *sensed* the deep urge of his nature and his lofty aspirations (he was too shy and modest to speak of his innermost feelings) and revered them. These seem so simply and adequately expressed

in Kipling's prayer[†] that I would fain quote some of the lines that may be specially applied to Carl.

'Father in Heaven, who lovest all,
Oh, help thy children when they call;
That they may build from age to age
An undefiled heritage.

Teach us to bear the yoke in youth,
With steadfastness and careful truth;
That in our time, Thy Grace may give
The Truth whereby the Nations live.

Teach us the strength that cannot seek
By deed or thought, to hurt the weak;
That, under Thee, we may possess
Man's strength to comfort man's distress.

O Mother land we pledge to thee
Head, heart, and hand through the years to be.'

At the South African College School, where Carl was one of the distinguished scholars and an ideal pupil, the fine quality of his drawings was soon recognized and fostered by the sympathetic master. This led on to the beautiful flower-paintings in water-colour that won the highest possible praise from Dr. R. Marloth, who inspired Carl above all others throughout his life. Later came the landscapes in oils, where his happiest creative expression was displayed. If he had devoted himself to art he might have been a great artist; but his aptitude for science prevailed and art became her gracious handmaiden, with a deep sense of the sublime pervading them both.

In 1932, not yet 18, he entered the University of Cape Town as a medical student and obtained his M.B., Ch.B. in December 1937. The actual study involved, arduous though it was, he managed with comparative ease, mingling with it his botanical studies of the *Stapelieae*, his numerous flower-paintings and, under the guidance of Mr. Herbert Lang, bringing his flower-photography to a standard of excellence rarely

* Wordsworth: 'Ode on Intimations of Immortality from Recollections of Early Childhood.'

[†] 'The Children's Song.'

acquired. These photographs were generously and freely given to all who desired them for illustrating their writings, and they were specially welcomed by Messrs. Alain White and Sloane for their great work (in 3 volumes) on the *Stapelieae*, which was published in 1937. These authors were in constant communication with Carl during the progress of their work, and would often accept his decision in critical cases. These years seem to have been one long 'crowded hour of glorious life', marred only by the inevitable close contact with human pain and distress, which must have been agony to one so sensitive and gentle as Carl was. He suffered silently and the strength of his youthful aspirations bore him triumphantly through the ordeal. Soon after this he was awarded a bursary by the University for post-graduate work and went to the school for training in Tropical Medicine in Holland, but, owing to a break-down in health, was unable to complete the course and returned to South Africa. Several valuable years were then spent as the Medical Officer in the Bloemfontein Hospital, where he gained more self-reliance and confidence, and also did research-work on vitamin deficiencies among the Bantu. This was the subject of the thesis for which he got the M.D. of the University of Cape Town in December 1944. In 1945 he was appointed as one of the Clinical Medical Registrars of the Groote Schuur Hospital, and at the same time he established himself as a Consulting Physician in Cape Town. A year later he became the Chief Medical Officer of the South African National Life Assurance Co., a very responsible post requiring high proficiency and good judgement. This he held to the end of his life, gaining skill and accuracy in the use and interpretation of electric cardiac examinations.

For rest or recreation it was ever the call of the open veld or the grandeur of the mountains that he obeyed—gay as a school-boy with friends skiing on the Matroosberg, but when alone on high peaks or buttresses the other self dominated. The silence that brooded in their valleys and kloofs was kin to his own spirit, and their majesty, aloofness and self-containedness took possession of his soul, bringing harmony and solace, faith and hope, and an unconquerable urge to save them from the ravages of fire, exotics, man's destructiveness and, in the case of Table Mountain, building encroachments. His love for Table Mountain became a passion and its preservation a sacred mission which he set out with all his might to fulfil. More and more thoughtful people, he felt, *must* be made aware of the tragedy that was

being enacted on Table Mountain, and about 1947 he began his crusade with 'Our Heritage', a ciné-film in colour, at which he worked alone during three years. In this the many violated sanctuaries were shown in contrast with the all too few oases left, some of which were already in danger. This was followed in 1950 by his impressive brochure, *The Case for the Preservation of Table Mountain as a Natural Monument*, in which a brief history of this successful* campaign is included. 'I commend this brochure with all the force at my command', are the closing words of General Smuts's Foreword. Then in 1951 his noble work, *Table Mountain*, was published—an astonishing feat and an almost superhuman effort, considering how many other activities there were to which he devoted his enthusiasm and labour. For years he was involved in unravelling public and private ownership of the higher mountain-slopes. At last regulations were promulgated that fixed the limits of City expansion and placed the control in the hands of the Table Mountain Preservation Board, of which Carl became an important member. (A few days ago this body met a subtle and well-supported infringement with a firm rebuff.) With the active co-operation of Mr. C. Gohl, our forestry officer, the slopes of Devil's Peak below Silver Stream were successfully replanted with Proteas and Riebeeck Park was established. His was the leading spirit in getting trees planted in Greenmarket Square and Riebeeck Square, as well as in saving the oak avenue on the Hout Bay road beyond Constantia Nek. He was appointed by the Government as one of the trustees of the National Botanic Gardens and became their Chairman in 1958. He was also a member of the Council of the Botanical Society of South Africa. Then there were his great interests in historic buildings and in the work of the National Society, of which he also became Chairman; his deep concern for the preservation of the historic 'Malay Quarter' in Cape Town, expressed in his book of that name, which was written on behalf of Dr. I. D. du Plessis (published in 1953); and his full share in the strenuous, and eventually successful, campaign to save the Old Supreme Court. His was, indeed, a life of ceaseless service.

Carl's *Stapelieae of Southern Africa*—'the fruit of many years sustained work'—was published in 1952. It is a sumptuous volume containing as many as 250 excellent reproductions of his own and Mr. Herbert Lang's fine photographs, as well as coloured plates, representing his own beautiful paintings of fourteen species, and

* Table Mountain was proclaimed a National Monument in 1957.

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numerous magnified line drawings, made by his sister, to illustrate vital characters. The letterpress, in Afrikaans and English, consists of an interesting introduction with botanical notes to each of the twenty genera, and identification-keys to their sections, species and varieties. This comprehensive work fulfils its purpose in bringing the scientific study of this large and fascinating group within the easy reach of succulent-enthusiasts and their disciples. May their numbers increase more and more, stimulated by this study, for 'on them', wrote the author, 'the protection of our succulent flora ultimately depends'.

Carl was married twice. His son now in his seventeenth year is lovingly described as a beautiful, tall boy, gentle and thoughtful, very cultured and sociable, and a good linguist, owing largely to his six years' training in Holland. His elder daughter, a bright, vivacious and very intelligent child, is in her sixth year, and the younger, a beautiful healthy baby, was 10 months old in June of this year.

My last meeting with Carl was at Kirstenbosch about two years ago, where he was chatting with Mr. Hall and admiring a charming exotic the former had been propagating successfully. He was given one of the pots. 'Are you sure I may have it?' he said, and, being reassured, he bade farewell. But after a few paces he turned round and with a radiant smile added—'My wife will be so pleased to have this'. He was clasping the pot with both hands and I, remembering his joy over the *Caralluma* in the Ceres Karoo, felt doubly blest in being associated with it once more when a beautiful thing had entered his life.

Carl was by nature reserved and quiet and shrank from controversy and dispute. His parents, whose loving understanding and sympathy were dedicated to their gifted son throughout his life, felt he was too inwardly withdrawn from his fellows and too introspective, and that, belittling his own efforts and reproaching himself for failure to realize his ideals, he often became deeply despondent and suffered an awful loneliness. Yet in all his public work his influence was impressive by reason of his quiet dignity, the earnestness of his convictions, his grasp of the subject under discussion, his accuracy and his eagerness to be helpful and take a responsible share of the work involved—qualities that won the respect of all his colleagues, and very often their affection.

Keats, perhaps the most imaginative of all the English poets, wrote: 'The imagination may be likened to Adam's dream; he awoke and found it true.' To imagine the unknown has ever been man's way, and some of the great ones of the past have had lovely visions of eternity, whose beauty they have been able to convey to us in the music of their poetry. Such is the Prophet Isaiah's 'Arise shine; for thy light is come, and the glory of the Lord is risen upon thee. . . . Thy sun shall no more go down, neither shall thy moon withdraw itself; for the Lord shall be thy everlasting light, and the days of thy mourning shall be ended.' Let us then imagine Carl enraptured, his soul 'singing like a bird at dawn', as he awoke in that realm where truth, beauty and love reign supreme and

'All we have willed or hoped or dreamed of good shall exist;

Not its semblance, but itself.'*

* R. Browning: 'Abt Vogler.'

Die Plantegroei van die Koperstreek van Noord-Rhodesië

DEUR J. W. LOUBSER

MEET weinig plantkundige kennis en aanvanklik geen naslaanwerke of herbarium tot sy beskikking nie, het die skrywer in 1954 'n studie begin maak van die plantegroei en in besonder die houtagtige struik en bome in die gebied binne omtrent 'n straal van 10 myl van die dorp Mufulira in die Koperstreek van Noord-Rhodesië. Uiteindelik is hooggewaardeerde hulp ontvang van die Noord-Rhodesiese Departement van Bosbewaring in die persoon van mnr. D. B. Fanshawe.

Binne 'n jaar was al die vernaamste bome en struik opgeteken, en is 'n stadium bereik waar die herbarium op Ndola nie volledig genoeg was vir die uitkenning van al die materiaal wat versamel is nie. Sodanige materiaal is dan ook goedgunstiglik deur mnr. Fanshawe na Kew versend vir uitkenning. Op dié manier is dan ook 'n geringe bydrae tot die herbarium en kennis van die omgewing gemaak.

Die bosveld van die Koperstreek kan algemeen beskryf word as savanna. Deurgaans is die landskap 'n golvende hoogland met hier en daar 'n rotsagtige koppie wat skaars sigbaar is bokant die bome. Die algemene hoogte is sowat 4,000 voet bokant seespieël. Hoewel dit goed binne die trope lê is die klimaat heeltemal gematig. In die winter word dit by uitsondering so koud dat die plantegroei doodryp. Die reënval in die reënseisoen wat van November tot Maart strek, is swaar. Van 40 tot 80 duim sak uit in dié vyf maande. In die orige maande reën dit egter selde. Alle jaarplante verdroog dan en word gewoonlik die prooi van bosbrande wat elke jaar dwarsdeur die hele streek voorkom.

Die hoogland waarin die Koperstreek lê strek vir honderde myle in alle rigtings en die plantegroei wat hier voorkom is dus verteenwoordigend van 'n baie groot gebied van Afrika.

Die bome in die algemene bosveld is betreklik yl en so tussen 30 en 100 voet hoog. Die meeste van die spesies is in die winter vir 'n kort tydjie sonder blare. Die dominerende groep is die *Brachystegia*- en *Isobertinia*-spesies saam met 'n verskeidenheid van ander lede van die *Caesalpiniaceae*. *Acacia* spp. is skaars en slegs twee spesies kom hier en daar langs die riviere voor. Daar is egter ook baie groenblywende spesies soos *Parinari* spp., *Syzygium guineense*, die lede van die interessante familie

Dipterocarpaceae, en *Euphorbiaceae* wat orals voorkom. Onder laasgenoemde is die *Uapaca* spp. opvallend en *U. kirkiana* domineer soms. 'n Mens kan ook nie help om die groot aantal *Ficus* spp. op te merk nie. Baie van hul is „verwurgers.” Hul saad ontkiem in die mik van 'n ander boom, en hul wortels vind hul weg langs die boom se stam af totdat die stam heeltemal onstrenghel is deur afhangende wortels. Hierdie wortels vorm dan later 'n verwurgende stam. Sommige van hulle word egter nooit groot genoeg om hul gasheer veel skade aan te doen nie.

Tussen die groter bome is daar talryke spesies wat selde hoër as sowat 15 voet word. Verskeie *Strychnos* spp. en *Combretaceae* hoort onder hierdie groep. 'n Groot aantal van die bome en struik dra eetbare vrugte. Sowat 30 eetbare soorte is opgeteken. Daar is egter gevind dat verskeie soorte soos die vrugte van *Mimusops zeyheri* en *M. kirkii*, heeltemal smaaklik is maar nie deur die natuurlike geëet word nie. Hulle is aan die ander kant versot op soorte wat vir die blanke 'n onaangename smaak het. Een van hul gunsteling is die „chitungulu”, 'n *Aframomum* sp. Die ondergrondse vrug is geweldig suur maar word in groot hoeveelhede versamel en verorber. Die musuku (vrug van *Uapaca kirkiana*) is seker die beste wildevrug in die streek. Dit kan die maroela van die noorde genoem word.

Betreklik min struikgewas kom in die droër bosveld voor, en meestal is dit taamlik oop tussen die bome en is die grond alleen deur kruide bedek. Baie interessant is egter die groot aantal dwergstruik wat hier voorkom. Die meeste van hul word slegs 'n paar duim hoog, groei slegs in die reënseisoen en word dikwels in die winter saam met die gras afgebrand. Die houtagtige wortelstok bring egter in die volgende reënseisoen die plant weer te voorskyn. 'n Groot aantal van die *Rubiaceae* veral *Fadogia* spp. asook verskeie *Ochna* spp. het hierdie groeiwyse. Interessant is dit ook dat naas die kleintjies daar groot spesies behorende tot dieselfde geslag voorkom. So byvoorbeeld trek die bloedrooi vruggies van *Lannea edulis* die aandag waar hul net bo die grond uitsteek terwyl die blare eers later uitkom. Dan is daar *Lannea antiscorbutica* wat maklik 50 voet hoog word. Een van die vyf *Protea* spp. wat opgeteken is is 'n

dwergstruik terwyl een soort tot 20 voet hoog word. Ek kan terloops sê dat *Protea angolensis* kan meeding met die beste Bolandse soorte wat skoonheid betref.

Die gereelde brande het by die plantegroei 'n hoë mate van weerstand daarteen laat ontwikkel. Nie net het die dwergstruik die houtagtige wortelstok nie, maar die groot bome word byna glad nie deur die vuur beskadig nie.

Verspreid deur die bosveld kom groot vleie of vleiaagtige oop kolle voor. Dit is laagtes waarheen die grondwater dreineer. Dit word uitsluitlik deur grasse en ander kruiden beslaan waar die water nie te diep is nie. Die vleie voed die menigte klein stroompies waarvan die meeste standhoudend is.

Alle besoekers word getref deur die groot aantal reusagtige miershope wat in die gebied voorkom. 'n Gemiddelde een is sowag 10 voet hoog en 25 voet in deursnee by die basis. Vir die plantkundige is hul nog meer treffend omdat daar 'n flora op hul voorkom wat heeltemal verwyder is van dié van die omgewing. Hul is veral struik, kleiner boompies en klimplante. Dit is te betwyfel of die beter gedreineerde posisie iets met die segregasie te doen het, want sommige van die miershoopplante kom ook in die boskasies langs die strome voor maar nie in die droër bosveld nie. Onder die families wat goed verteenwoordig is op die miershope is Capparidaceae, Vitaceae, Euphorbiaceae en Rubiaceae. Dit moet opgemerk word dat baie van die miershoopstruikelders in Afrika gewoonweg deel van die algemene flora uitmaak. Voorbeelde wat bv. ook in die Transvaalse Bosveld voorkom is; *Dichrostachys nyassana*, *Euphorbia ingens*, *Dombeya rotundifolia*, *Steganotaenia araliacea*, *Lantana rugosa* en *Pavetta schumanniana*.

Afgesien van *Euphorbia ingens* kom daar nog 'n vetplant, nl. *Euphorbia* sp., in die klipkoppies voor. Die enigste ander vetplante wat opgemerk is, is 'n drietal *Aloe* spp.

Seker die grootste verskeidenheid van plantegroei in

hierdie streek word aangetref in die digte boskasie wat hier en daar langs die strome aangetref word. Hierdie sogenaamde „mushitu” is hoofsaaklik groenblywend en 'n mens is geneig om te sê dat dit meer tropies is as die savanna, maar tog bevat dit verskeie spesies wat tot ver in die suide voorkom. *Apodytes dimidiata*, *Myrica conifera* en *Ilex mitis* kom bv. in die Kaapse Skiereiland ook voor. Tog skakel hierdie flora meer met dié van die oerwoude van Wes-Afrika. 'n Mens vind hier 'n rykdom van pragtige grootblommige Rubiaceae, rankende Annonaceae, *Jasminum* spp. en ander tussen die weelderige groot bome. Hier is ook 'n groot verskeidenheid van interessante boom-orgideë gekonsentreer.

Orals in die streek is daar ook 'n rykdom van grondorgideë. In die algemeen is hul meer aantreklik as die plaaslike epifitiese soorte. Ook die Liliaceae en Iridaceae is verteenwoordig deur 'n verskeidenheid van aantreklike spesies. Die *Gloriosa* het min of meer Rhodesië se nasionale blom geword. Die Iridaceae is nie so volop nie maar interessant. Verskeie *Gladiolus* spp. is opgemerk, sommige waarvan klein en fyn is soos dié wat in die Boland in die rietpolle staan.

Geoloë maak gebruik van die sterk gesegregeerde plantegroei in hul werk. Omdat daar so min dagsome is, is die opsporing van geologiese formasies moeilik, en die studie van die plantegroei het 'n groot hulpmiddel blyk te wees. Daar is bv. gevind dat *Landolphia kirkii* die weligste groei op die formasie waarin die koperafsettings voorkom.

Ongelukkig is baie min van die hout van die bosbome geskik vir timmerhout. Meestal is die hout baie hard en die draad baie warrig. *Pterocarpus angolensis*, *Faurea* spp., *Afrormosia angolensis*, *Khaya nyassica*, en ander lewer egter mooi meubelhout. Die Departement van Bosbewaring eksperimenteer met naaldhout en ander uitheemse bome, maar hulle het baie nederlae gely teen die gedugte rysmier. Die suksesse hou egter belofte in.

The Botany of Basutoland

By A. JACOT GUILLARMOD

BASUTOLAND, a small, mountainous country under the protection of Britain and with its own almost independent internal government, is entirely surrounded by the Republic of South Africa. It is about 130 miles long by 90 miles wide, forming roughly a rectangle with its long axis lying northeast-southwest, and being the highest part of Africa south of the equatorial regions. Of its 11,700 square miles, fully three-quarters is mountain land at an altitude of 7,000 to 11,000 feet above sea-level, and the lowlands, less than one-quarter of the country, lie at 5,500 to 6,500 feet. Between these two is a narrow strip of very rugged foothill country, much cut up, with steep valleys and precipitous hillslopes, and varying in height from 6,000 to 8,500 feet.

The highest peaks of the Qathlamba or Drakensberg range lie not very far from the border with Natal, and rise to 11,425 feet in Thabana Ntlenyana, the 'Beautiful Little Mountain', a name given perhaps because of the gently rounded appearance of the cap at the top. This is the highest point in Africa south of the East African mountains. In the mountain area, several high waterfalls occur, the highest being the 632-foot sheer drop of the Maletsunyane Falls, where the river pours down the dark basalt cliff in white spray into a gorge that has walls over a thousand feet high in many places. The mountains are very well watered, and the lowlands too are provided with many streams and rivers flowing down from the foothills, but while the mountain waters are, except after heavy storms, clear, and flow over rocky beds, the lowland rivers are heavy with silt and many have treacherous quicksands in them.

The climate is uniform, with rainfall mainly in the summer, though rain, sleet and snow may occur in winter in the lowlands and snow always falls in the mountains at that time. Thunderstorms are frequent and violent: they are most common in spring and summer but may occur at all times of the year, sometimes with devastating hail. The average rainfall varies from about 20 to 25 inches in the southern lowlands to over 30 inches in the northern lowlands, and it is generally very much more in the mountains, especially towards the escarpment, where up to 80 inches, or perhaps more, a year may fall in some places.

The vegetation follows very closely the three main physical divisions—lowlands, foothills and mountains,

with outlying patches of lowland or foothill vegetation intruding into the mountain area up the river valleys, which are the only breaks in the high mountain barriers; these valleys all lead in from the south-west of the country as, for example, the valley of the Senqu (Orange River), and serve as pathways for the invasion of the country, as overpopulation and overstocking increase, by Karoo plants.

Those who have done the most collecting and botanical exploration in this apparently stern and inhospitable country are women, among whom special mention must be made of Madame A. Dieterlen, wife of one of the early French missionaries. On her work and extensive collection of plants, Phillips based his thesis, 'A Contribution to the Flora of the Leribe Plateau and Environs', the only major work published on the flora. This deals with the lowland flora alone, and principally with that of the northern part. An ecological survey of the mountain area was carried out in 1936 by Staples, with special reference to the grasses; a few major errors, perhaps due to printing, have crept into this, and nullify much of it.

The earliest collectors who mention Basutoland are Cooper and Flanagan. Cooper, it would appear, used the word Basutoland in a very much wider sense than is understood today, and it is often doubtful whether the specimens labelled as coming from Basutoland were actually collected within the country. Flanagan did most of his collecting on the escarpment overlooking Natal, near Mont-aux-Sources, and hardly penetrated into the country. Galpin made one or two short trips into Basutoland, and published lists of the plants collected. While staying with Madame Dieterlen and her husband, Phillips made a collection of the plants round Leribe, and Madame Dieterlen's own collecting was done mainly there and at mission stations in southern Basutoland, while, later, Rev. Fr. Laydevant, O.M.I., also collected in the lowlands. Mrs. Milford, shortly before the war of 1939-45, made extensive trips on horseback in the Basutoland mountains, mainly along the north- and south-eastern borders, to collect living plant material for the Royal Horticultural Society, while Staples formed a small collection, principally of grasses, during his ecological survey in 1936. Latterly members of the Division of Botany of the Republic of

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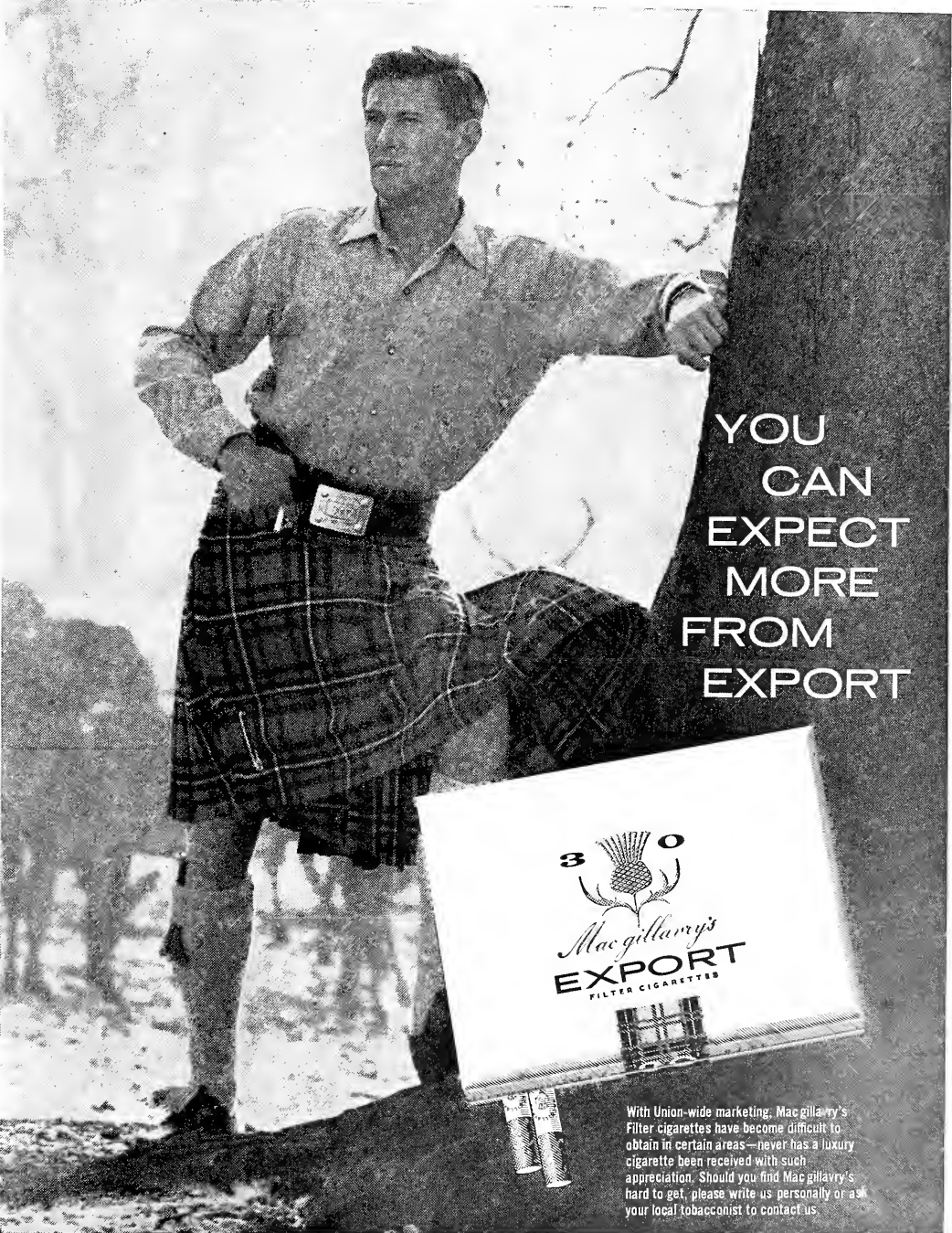
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CAPE TOWN

South Africa have done fairly extensive collecting of herbarium material, and Compton, van Zinderen Bakker, Miss Coetzee and the author have all explored the mountain area, the latter also covering much of the lowlands again.

Many new records and much new material have resulted from this work lately. The majority of the specimens collected are to be found in the National Herbarium, Pretoria, the Compton Herbarium, Kirstenbosch, the herbarium of the South African Museum (now incorporated in the Compton Herbarium), in Paris, in the Vatican, in the herbarium of the Albany Museum, Grahamstown, and in the two fairly small herbaria in Basutoland itself—that at Maseru, of the Department of Agriculture, and the other at Roma, in the Botany Department of Pius XII University College, while some two or three thousand specimens are in the private collection of the author.

All three areas, lowlands, foothills and mountains, are primarily grassveld, the last being most accurately described as grass steppe country. In the lowlands occur patches of indigenous bush and small trees reaching perhaps twenty or thirty feet in height. Introduced species such as poplars and *Agave americana* have been planted in many places to stabilize the rapidly eroding soil. These exotics are spreading, as are also the wattles (*Acacia* spp.), but fortunately the gums (*Eucalyptus* spp.) and pines and *Robinia pseudacacia* do not as yet show the same tendency to invade areas other than where they have been planted.

The grass cover, typical of the country, was formerly a mixed Themeda-Hyparrhenia type, but is now mainly formed of the less palatable, harder grasses such as *Eragrostis plana*, and species of *Aristida*, or, in disturbed ground, annuals and species such as *Panicum maximum*. The grass has many annual herbs in it, and also bulbous perennials or plants with underground tubers or corms—species of *Moraea*, *Asclepias* and its allies, orchids, etc., but very few truly succulent-leaved plants except for a few Aizoaceae, and the ubiquitous aloes—*Aloe ferox* in the south and *Aloe saponaria* var. *ficksburgensis* in the north. Many aliens are common as weeds, as, for example, *Cosmos*, which flowers in sheets of colour in autumn on river banks and the contoured grass ridges in the ploughed lands. The grass now is nowhere tall, except for the protected areas of thatching grasses, where grazing is forbidden: these contain mainly *Hyparrhenia* spp. and a little *Cymbopogon*. The devastating veld-fires so common in Natal do not occur in the Basutoland lowlands as the vegetation is too short, but

fires are often deliberately set in mountain grassland by herdsmen who propose taking their stock up to these parts later in the year. The thatching grass or the reeds which grow in the vleis are cut at set times and the trash burned off afterward.

The foothills are richer in trees and shrubs than either of the other two areas, though here again grass is the main element of the vegetation. The steeper slopes of the narrow valleys and gullies running up the mountain-sides are where most of the trees and shrubs are found, and here thickets of bamboo (*Arundinaria tessellata*) and patches of woodland, formed in some places mainly of *Leucosidea sericea*, grow well. A few proteas are found, *P. roupelliae* in the south and *P. caffra* in the north, but these are rapidly dying out as the plants are cut for fuel. *Cussonia paniculata* reaches the base of the foothills only, but *Buddleja salviifolia* grows fairly high up and is then superseded by *B. corrugata*. The height of the trees and shrubs decreases as the altitude increases and the tops of the foothills are entirely grass-covered. One or two shrubby Composites such as *Athanasia thodei* have become weeds along the bridle-paths, and both herbaceous and shrubby species of *Helichrysum* take over much disturbed ground in the foothills, with a few scattered thickets of *Rubus rigidus* and *R. ludwigii* in places.

There is an abrupt change between the foothill vegetation and the almost exclusively grassland vegetation of the mountains. Most of the shrubs and trees of the foothills do not cross the mountain barrier of altitude, even though many of the valleys in the mountains are lower than much of the foothill area. It is only in the lower valleys that exotic species of willows and poplars have been planted, but otherwise trees are entirely absent from the mountain vegetation. A few species, such as the shrubby *Buddleja corrugata*, *Phygelius capensis*, always found near streams, *Helichrysum splendidum* and *Athanasia thodei*, may be common to both sides of a pass, but even these do not extend much farther in than the first mountain valley, in the northernmost part of the country, though farther south penetration is up river valleys. Species such as *Eumorphia sericea*, *Helichrysum trilineatum* in two forms, *Passerina montana* and short ericaceous bushes including several attractive *Erica* spp. grow in some parts, while the marshy hollows may be filled with acres of *Kniphofia caulescens*, and damp slopes covered with the tall tussocks of peculiarly yellow-green *Danthonia drakensbergensis* or *D. macowanii*, a grass usually much taller than the shrubs.

The total number of species found in Basutoland is not known with accuracy yet, but it probably lies

between 1,500 and 2,000, with the Compositae providing the greatest number, and the grasses well below this; between them, however, these two families account for about a third of the total species of flowering plants found in the country. Notably absent from the Basutoland flora are indigenous species of *Acacia*, and any *Podocarpus* or cycads, though these all occur in the areas immediately surrounding Basutoland. So far no record of any species of *Phylca* has been made, nor has *Aspalathus*, another typical Cape plant, been recorded, but there are several species of *Cliffortia*, notably *C. ramosissima* and *C. linearifolia*, and *Geum capense* is common at high altitudes as a pioneer in disturbed grassland. Links with the flora of the Orange Free State are common, especially in the lowland area adjoining the Free State border, but except for those plants common to the higher parts of the Drakensberg range and the Basutoland mountain area, there is little correspondence between the Natal flora and that of Basutoland. The wide-leaved *Kniphofia northiae*, common in Basutoland, reaches down into Natal to the Nottingham Road district and also along the western extension of the Drakensberg, while *Guthriea capensis* extends from Graaff-Reinet in the Cape to the Witzieshoek district of the Orange Free State and perhaps into Natal.

A plant peculiar to Basutoland is the very geometrically developed *Aloe polyphylla*, with leaves in extremely tight spirals; this is found on the inner ranges of the mountains only, in isolated localities. Other plants which have their main distribution centre in Basutoland are the attractive *Agapanthus patens*, with deep sky-blue flowers, and *Rhodohypoxis rubella* and *R. baurii*, while *Ranunculus cooperi* is common at high altitudes in Basutoland and spreads eastward along the Drakensberg into the Transvaal. A beautiful blue-flowered, shrubby *Aster* which has not yet been named is found growing with *Eumorphia sericea* in the higher parts. Another blue flower is *Lobelia aquatica*, found often with *Rhodohypoxis* in bogs.

Common trees of the lowlands are *Salix capensis*, along river banks together with the introduced weeping willow, *Celtis africana*, *Pittosporum viridiflorum*, various species of *Rhus*, *Ilex mitis*, *Maytenus* (*Gymnosporia*) *buxifolia*, *Rhamnus prinoides*, *Kiggelaria africana*, *Heteromorpha arborecens*, formerly always planted at the entrance to the chief's courts of customary law, species of *Royena* and

Euclea, *Olea chrysophylla*, often used to supply 'palm' branches for Palm Sunday services, *Halleria lucida* and *Canthium ciliatum*, as well as those previously mentioned. Many of these species are cut so often for firewood they grow almost as shrubs.

Shrubs and herbs include the rarely found *Melianthus comosus* and *Erythrina zeyheri*, which, in the few places where it grows, covers an acre or two and in one place has flowers of cream, pink, scarlet and crimson on different plants. *Myrsine africana* and two species of *Clusia* grow at the base of cliffs, while *Clematis branchiata* and *Rhoicissus cuneifolia* climb over the trees. *Indigofera spinescens* and the shrubby *Aster filifolius* come in on overgrazed portions. There are many lovely orchids, including several species of *Eulophia* and of *Disa*, and the rare and delicate *Brownleea macroceras*: *Gladiolus* species are common in the mountains and among them are *Gladiolus saundersii*, a large, red-flowered species which becomes a weed in cultivated lands, and the slightly smaller *G. cruentus*, also red. From February till April, the attractive deep pink candelabra heads of *Brunsvigia radulosa* are seen on some grass slopes, but *Boophone disticha*, the bulb of which is used for ritual purposes, is rare. Some of the herbaceous species have become weeds in cultivated land, and fallow fields may be seen at times with a dense covering of *Lobelia*, all in flower at once, or of *Nemesia*, *Wahlenbergia androsacea* or *Arctotis stoechadifolia*.

In the lowlands *Erica cerinthoides* grows mainly in rock crevices, providing trusses of bright red flowers, and *E. maesta* and *E. alopecurus* are also common, the latter also being common in the mountain grassland, where several other *Erica* species are found, sometimes covering whole hillslopes.

One of the most attractive parts of Basutoland is the highest part of the mountain area, where the turf is short, and a mass of short-stemmed flowers of many species grow—*Geranium*, *Aster*, *Helichrysum*, *Trifolium*, and others. In this part, too, are found the peat bogs, where many water-loving plants, including *Eriocaulon baurii*, several species of *Limosella*, *Athrixia fontana*, *Landtia hirsuta*, *Lobelia aquatica*, *Anagallis huttoni*, a delicate pink bell flower, and a star-petalled *Ranunculus*, *R. baurii*, grow, together with various sedges, mosses and liverworts, and sometimes, *Lagarosiphon muscoides*, and a dainty mauve-flowered *Utricularia*.

South African Epiphytic Orchids: I.

By DR. E. A. C. L. E. SCHELPE

INTRODUCTION

MOST of the indigenous South African orchids are terrestrial, but a relatively small number of them have an epiphytic habit. Epiphytic plants live attached to trees but do not obtain their nutrients from the living tissues of the host tree as do parasitic plants. However, they will gain some nourishment from the products of natural decay of the bark and from solutions of bird droppings washed down the trunks by rain. The water requirements of epiphytes are met not only by rain but also by dew and mist. Some epiphytic orchids store water in swollen stems, known as pseudobulbs, while in others, which do not produce these structures, the leaves function as water-storage organs. Although many of the South African epiphytic orchids grow exclusively on trees there are a number which may be found growing either on trees or on partly sheltered rock faces.

Epiphytic orchids are absent from the winter-rainfall area but are frequently met with in forests in the summer-rainfall area and in the non-seasonal rainfall area about Knysna. Their absence from the winter-rainfall area is apparently due to their dislike of prolonged wet conditions during their winter resting-period and their requirement of adequate moisture during their summer growing-season (Schelpe, 1958).

For convenience, the genera of South African epiphytic orchids with pseudobulbs will be treated in this first article. The angraecoid (Angraecum-like) orchids without pseudobulbs will be dealt with in a subsequent contribution.

BULBOPHYLLUM

The genus *Bulbophyllum* is a widespread mainly tropical genus comprising over nine hundred species. Of these only one, *Bulbophyllum sandersonii* (Oliv.) Reichb. f., occurs in South Africa. The plant consists of a creeping rhizomatous stem which bears 1-inch to 2-inch high pseudobulbs at intervals, each pseudobulb having a pair of oval leathery leaves at its apex. The inconspicuous maroon flowers open in succession along a peculiar flattened flower spike, which arises from the base of the leading pseudobulb. The lip (a much modified third

petal characteristic of most orchids) is remarkable in this orchid in having an apical portion which is tenuously joined to the rest of the lip and which vibrates rapidly in a breath of wind.

Species of *Bulbophyllum* with flattened flower spikes and partially joined lateral sepals were formerly placed in a separate genus, *Megaclinium*. However, the discovery of species exhibiting intermediate characters between those of *Bulbophyllum* and *Megaclinium* has led to the amalgamation of the two genera under *Bulbophyllum*.

Another species described from South Africa is *B. scaberulum* (Rolfe) Bolus, which was supposed to differ from *B. sandersonii* in having squat, strongly four-angled pseudobulbs instead of elongate pseudobulbs. The shape of the pseudobulbs varies considerably among the different populations of this species, but vigorous plants growing in high light intensities usually have squat pseudobulbs.

ANSELLIA

The Ansellias are the largest of the epiphytic orchids occurring in South Africa. The pseudobulbs, which can reach 4 feet in length, arise from among a dense mass of white roots and are surmounted by a number of leathery leaves. The branched flower spikes develop from the apex of the recently formed pseudobulbs. They are usually found in subtropical woodland in the major river valleys of Zululand, on the Transvaal lowveld and the Mozambique plain.

Ansellia is an entirely African genus of two species and two varieties. Of these only *A. gigantea* Reichb. f. and *A. gigantea* var. *nilotica* (N.E.Br.) Summerhayes are known to occur in South Africa. *A. africana* Lindl., with which the South African plants have been confused, is confined to West Africa and Uganda, with a variety in Angola.

The typical *A. gigantea* was described from a specimen collected by Gueinzus near Durban and is only known from Natal, the southern Transvaal, Swaziland and the region around Lourenço Marques. It has relatively small flowers (about 1½ inches across) with very lightly spotted or unspotted yellowish floral segments and with

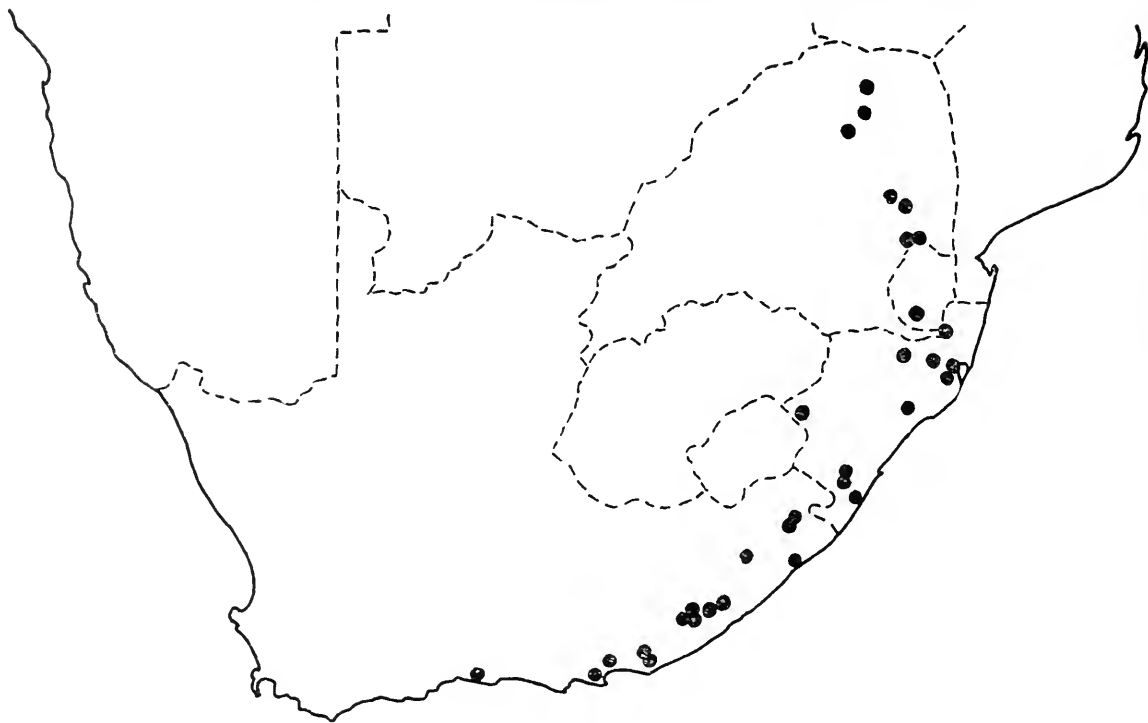


FIG. 1. The distribution of the genus *Polystachya* in South Africa.



FIG. 2. The distribution of the genera *Ansellia* (●) and *Bulbophyllum* (○) in South Africa.



PLATE 2

A small plant of *Ansellia gigantea* Reichb. f.
flowering at Kirstenbosch



PLATE 3

Polystachya imbricata Rolfe
from near Duivelskloof, Eastern
Transvaal



PLATE 4

Polystachya fusiformis (Thouars) Lindl.
from the Ngome Forest, Zululand

hardly any development of ridges on the side lobes of the lip. *A. gigantea* var. *citrina* Reichb. f. almost certainly refers to the form with unspotted flowers.

A. gigantea var. *nilotica* has larger flowers which are yellow with bold brownish spots or bars on the floral segments and with marked ridges on the side lobes of the lip. This variety has a known distribution range extending from Zululand and the Transvaal lowveld through east tropical Africa to Kenya, Uganda and northern Nigeria (Summerhayes, 1937). What appears to be a rather pale form of this variety was figured in Curtis's *Botanical Magazine* (t.4965, fig. 3) under the name of *A. africana* var. *natalensis* Hook. from a specimen sent from Natal and flowered in Britain in 1857.

Ansellias are often part of the stock-in-trade of Zulu herbalists, and an infusion of the stems or leaves is used as an emetic. Watt and Breyer-Brandwijk (1937) report that Zulu youths wishing harm to an unmarried maiden use the roots as a charm which is thought to render her sterile. They also report that in Northern Rhodesia an infusion of Ansellia leaves and stems is given as a remedy for madness.

POLYSTACHYA

The genus *Polystachya* is a predominantly African genus which has outliers in Central America and in Asia. In South Africa, eleven species are recognized, but the identity of two other species described from plants collected in this region is in doubt.

The only South African species of *Polystachya* with a solitary leaf at the apex of the pseudobulb is *P. gerrardii* Harv. It bears greenish flowers on an arching spike and has a distribution range extending from the Richmond district of Natal to the eastern districts of Southern Rhodesia.

Another distinctive species only recently discovered in South Africa is *P. fusiformis* (Thouars) Lindl., as yet only known in this region from the Ngome Forest in Zululand. It has slender superposed pseudobulbs which arise from the middle of the previous year's pseudobulb instead of from the base of the old pseudobulb as in the other South African species. This species bears a panicle of insignificant greenish flowers and has a distribution range extending through East Africa to Madagascar and Mauritius.

The rest of the species occurring in South Africa can be conveniently grouped according to the shape of their pseudobulbs. The first group has thin cylindrical pseudobulbs which are not swollen at the base and

includes *P. transvaalensis* Schlecht. (of which *P. natalensis* Rolfe is a synonym) and *P. imbricata* Rolfe. *P. transvaalensis* is widespread through the montane forests of Pondoland, Natal and the eastern and northern Transvaal and occurs through East Africa as far north as Uganda (Summerhayes, 1956). Its thick leathery leaves, which turn black on drying, separate this species easily from *P. imbricata*, which has much thinner, longer and narrower leaves and which has only been found in this region in the eastern Transvaal. Outside South Africa, *P. imbricata* and its varieties are widespread throughout Central and East Africa. Other useful characters in distinguishing these two species are the crowding of the flowers among overlapping bracts in *P. imbricata* as opposed to the widely spaced flowers of *P. transvaalensis*. Both species have greenish, rather fleshy flowers which are tinged with brown in some specimens.

The second group of species, in which the pseudobulbs are swollen at their bases, can be further subdivided into three sections. Firstly, there is one species in South Africa of a section of this genus which is deciduous and produces its lilac flowers on an inflorescence which has remained dormant since the shedding of the leaves from the leading pseudobulbs. This is *P. zuluensis* L. Bol. which has only been found growing on *Vellozia* stems near the southern end of the Lebombo Mountains.

Secondly, in another section with basally swollen pseudobulbs, three species with small flowers ($\frac{1}{8}$ – $\frac{1}{4}$ inch across) have been described from South African material: *P. tricuris* Reichb. f., *P. rigidula* Reichb. f. and *P. similis* Reichb. f. From a comparison of the original descriptions it is clear that an important character is the presence of a keel or ridge along the middle of the lower half of the lip in *P. tricuris*, a feature which is absent in *P. rigidula* and *P. similis*. This keel is also characteristic of *P. tessellata* Lindl., a widespread tropical African species of this group, and consequently *P. tricuris* has been regarded as conspecific with *P. tessellata* (Summerhayes, 1942). However, two colour forms of *P. tessellata* occur in South Africa. A yellow-flowered form which extends as far south as the Nelspruit district of the Transvaal is referable to typical *P. tessellata*, while the lilac-flowered form with a narrower lip is known from hills in central Zululand to Port St. Johns. Although no information is available on the colour of the flowers of the original specimen of *P. tricuris*, collected by Gerrard near the Tugela River, it seems probable that this name applies to the more southern lilac-flowered form.

Yellow-flowered specimens lacking the keel on the lip, and therefore referable to *P. rigidula* and *P. similis*,

are known from the coastal belt of Natal and Zululand. However, *P. rigidula* was described as having a pair of erect papillae near the base of the lip. Recently, it has been possible to examine Reichenbach's authentic material of *P. rigidula* and it seems that this character is entirely imaginary, and that *P. rigidula* and *P. similis* were based on juvenile and mature plants, respectively, of the same species. *P. rigidula*, the earlier name, is therefore the correct name for this species.

The third section of South African Polystachyas with basally swollen pseudobulbs produce larger flowers ($\frac{1}{3}$ – $\frac{1}{2}$ inch across). This section includes *P. pubescens* (Lindl.) Reichenb. f., *P. sandersonii* Harv., *P. ottoniana* Reichenb. f. and an undescribed species with yellow flowers similar in general appearance to *P. ottoniana*. All are endemic to the south-eastern and eastern parts of South Africa. Of these, the best known are *P. pubescens* with deep yellow flowers marked with brown lines on the lateral sepals and *P. ottoniana* with white or lilac-flushed flowers with yellow stained lips. (*P. pisobulbon* Kraenzl. may be a synonym of the latter species.) *P. sandersonii*, which appears to be less common than *P. ottoniana* and *P. pubescens*, is easily distinguished by its greenish yellow flowers and pale coloured lip.

P. glaberrima Schlecht. was described from a plant collected on the Saddleback Mountain near Barberton and is reputed to differ from *P. ottoniana* in having a lip which is gradually narrowed to a sharp point. No

specimens from the Barberton area answering to this description have been found recently and the identity of this species is still in doubt.

ACKNOWLEDGEMENTS

The author wishes to thank the Director of the Botanical Section of the Naturhistorisches Museum, Vienna, for the opportunity of examining material in the Reichenbach Herbarium, and Messrs. Errol Harrison and Peter Bell whose field-work has resulted in significant contributions to the knowledge of South African orchids.

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Seed Distribution, 1962



Your copy of the 1962 seed list is enclosed with this Journal, together with an addressed envelope to the Director, National Botanic Gardens. Members are reminded that seeds are only distributed from **January–April** and during the month of **September** each year. It is sincerely regretted that seed requests received after these dates cannot be dealt with until the next distribution period. Your kind attention to this would greatly help the staff at Kirstenbosch and would eliminate a great deal of correspondence which, owing to the number of requests received, is quite impossible to deal with. Please, therefore, do not forget to send in your request for seeds at the correct time!

THE BOTANICAL SOCIETY OF SOUTH AFRICA

ANNUAL REPORT FOR THE YEAR ENDED 31 DECEMBER 1960

THE Council of the Botanical Society of South Africa presents with pleasure the Forty-seventh Annual Report of the Society for the year ended 31 December 1960.

MEMBERSHIP. There are now 3,431 members of the Society. The Council regrets to record the resignations and deaths of 149 members, while a further 232 had to be struck off the roll, being two or more years overdue with their subscriptions. These figures are, however, happily offset by 469 new members, making a net gain of 88 during the year.

FINANCIAL. The Balance Sheet appended hereto records another successful year, the surplus being £2,877 12s. 11d., which forms the Society's grant to the Trustees of the National Botanic Gardens, an increase of £173 16s. 11d. over the previous year. It is very pleasing to record such a substantial grant particularly in view of the fact that a sum of £220 was also placed on Fixed Deposit to form the nucleus of a special 'Reserve Fund' for the specific use of the Society. It is hoped to add to this fund each year until a target of £1,000 is reached. This reserve fund is to replace the Dr. Bernard Price Bequest of £827 10s. 0d., which proved of such inestimable value and which was finally written off in 1959 against office extensions etc. The total income of the Society for the year was £4,395 6s. 11d. Expenditure was £1,517 14s. 0d. Financial assets at year end are as follows: Placed on Fixed Deposit £2,857 18s. 10d.; Cash in bank at call and with interest £4,019 16s. 3d.; Addressograph equipment £150, making a total of £7,027 15s. 1d. This figure represents: Balance in Life Members Fund £3,530 8s. 9d.; Grant to National Botanic Gardens £2,877 12s. 11d.; Subscriptions in advance £398 18s. 6d.; Reserve fund £220 14s. 11d.

PRESIDENT: CHAIRMAN, BOARD OF TRUSTEES. Mr. D. R. D'Ewes, President of the Botanical Society, replaced Dr. C. A. Lückhoff, whose death we sincerely regret to record, as Chairman of the Board of Trustees of the National Botanic Gardens of South Africa. Dr. Lückhoff was a member of the Council of the Society and fitting tribute will be paid to him in the next issue of the Society's annual Journal.

AWARD FOR VICE-PRESIDENT. We were glad to offer our congratulations to Professor H. B. Rycroft, Director of the National Botanic Gardens and a Vice-President of the Society, on obtaining a Royal Society and Nuffield Foundation Commonwealth Bursary, together with a grant from the Cape Tercentenary Foundation, to enable him to go overseas for six months to continue his studies on the genus *Protea*. Professor Rycroft visited all the important herbaria and botanic gardens in Great Britain and on the Continent. The honour of Fellowship of the Linnean Society of London was also conferred on him while overseas.

CAPE FLORAL KINGDOM. Congratulations also went to another member of the Council, Mr. C. L. Lighton, whose book *Cape Floral Kingdom* was published during May, and which is now enjoying record sales.

WILD FLOWERS OF THE CAPE OF GOOD HOPE. Only 3,183 copies of this book remain unsold. A further amount of £250 was transferred to the Trustees of Kirstenbosch during the year. A total of £2,825, representing surplus sales of the book, has now been transferred to the Trustees.

THE CONTROL OF ALIEN VEGETATION COMMITTEE. This continues its excellent work under the Chairmanship of Mr. A. J. A. Simpson. The Committee now has its own Constitution and works independently of the parent body, i.e. the Botanical Society. Although it is fully realized that the problem of alien vegetation is so severe as to seem insurmountable at times, the Committee is determined in its efforts to tackle the problem. Numerous approaches have, and are, constantly being made to the various authorities concerned in an effort to arouse interest and action in combating the menace, which is a national one, and one which accounts to a very large extent for the extermination of our indigenous flora. Over 1,000 copies of the booklet *The Green Cancers in South Africa* were distributed free to all parts of the Union during the year.

MEETINGS OF THE SOCIETY, 1960. Twelve meetings for members were arranged. The inauguration of a meeting in January for the benefit of our distant members certainly seems to be appreciated by those who are visiting the Cape at the time.

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

Upon the conclusion of the business of the Annual General Meeting held on 22 March, several members spoke of their experiences in growing our indigenous flora. This proved very popular.

On 30 April, we visited the Compton Herbarium at Kirstenbosch when Dr. Joyce Lewis, Botanical Research Officer in the Herbarium, kindly conducted us round. Afterwards, a tree-planting ceremony was held to commemorate the Tercentenary of Van Riebeeck's Hedge, a portion of which still stands in the Gardens. Many plants of *Brabeium stellatifolium* (Wild almond), which had been raised at Kirstenbosch for the purpose, were handed out to fill in the gaps in the hedge and some were planted by representatives of the Society, the Trustees of the Gardens, public authorities and other societies.

Mr. and Mrs. J. E. P. Levyns contributed to a most enjoyable evening on 24 May, when they related with the aid of colour slides their experiences of a 'Botanical Trip to Australia'.

The Curator of the Karoo Garden, Worcester, Mr. F. J. Stayner, spoke to us on 9 August, his subject being 'Where Three Floras Meet', illustrating an area near Port Elizabeth.

Saturday, 3 September, was a particularly delightful day, the afternoon of which we spent in the lovely indigenous garden of Dr. and Mrs. C. A. van der Merwe, of Somerset West, who afterwards kindly gave us tea.

The annual visit to the Karoo Garden, at Worcester, was unfortunately marred by inclement weather, Mr. W. Naudé, Chairman of the Divisional Council of Worcester, deputizing for the Mayor, addressed the meeting, after which tea was served.

Wild Flower Show 24 and 25 September. As noted in the annual report of the Wild Flowers Protection Committee, this was very successful.

Annual Gathering of Members, Saturday, 15 October. A large number of members and visitors attended this function in ideal weather. In addition to the gathering, this day also marked the inauguration of the Kirstenbosch Postal Cancellation, a unique event for Kirstenbosch. We were fortunate to have as our guest speaker Mr. N. J. Jordaan, Postmaster, who afterwards presented the awards in the J. W. Mathews Trophy Competition.

Festival Year Braaiivleis, Kirstenbosch, Saturday, 26 November. Perfect weather combined with plenty of

food and jolly company decided us that a braaiivleis must most certainly feature as one of the Society's annual fixtures.

JOURNAL OF THE BOTANICAL SOCIETY, Part XLVI, 1960, was published in September and distributed to all members, libraries, etc.

SEED REQUESTS. More and more seed requests are received from members each year. During 1960, 22,535 packets were distributed.

OFFICE BEARERS. The following were elected at the Annual General Meeting of the Society held on 22 March:

President: Mr. Dudley R. D'Ewes.

Vice-Presidents: Mr. C. J. Sibbett, Professor R. H. Compton, Professor H. B. Rycroft.

Council:

Dr. G. J. Broekhuysen.	Dr. G. J. Lewis.
Mr. M. Clough.	Mr. C. L. Lighton.
Dr. J. S. Griffiths.	Mr. J. S. Linley.
Mr. H. A. van Hoogstraten.	Mr. S. Macpherson.
Professor W. E. Isaac.	Mr. W. J. Middelmann.
Dr. W. P. U. Jackson.	Miss E. L. Stephens.
Miss M. E. Johns.	Capt. M. F. Stern.

Mr. A. J. A. Simpson.

Mr. Milton Clough and Mr. S. Macpherson were re-elected Chairman and Vice-Chairman, respectively, at the first meeting of the Council.

OBITUARY. The Council records with very sincere regret the deaths of twenty-five members of the Society during the year. Letters of condolence have been sent.

THANKS. Appreciation is hereby recorded to all those who have contributed during the year to the furtherance of the Society's work, with special mention to the staff of the National Botanic Gardens. The Cape Provincial Administration is gratefully acknowledged for kindly allowing the use of its rooms for meetings of Council. The South African Broadcasting Corporation together with the daily press is also sincerely thanked for its helpful co-operation at all times.

MILTON CLOUGH
Chairman

MRS. W. N. HALL
Hon. Secretary/Treasurer

Wild Flowers Protection Section Committee

ANNUAL REPORT FOR THE YEAR ENDED 31 DECEMBER 1960

THE Committee held regular and well-attended meetings during the year to attend to relevant business.

FINANCIAL. The total annual income for the Section was £583 9s. 4d., of which £393 18s. 11d. was received in members' subscriptions. Expenses: There were three main items of expenditure, these being £188 13s. 0d. for the purchase of 1,000 vases for the annual wild flower shows, £163 Gestetner duplicator, and £60 towards publication costs of *The Green Cancers in South Africa*. A Fixed Deposit of £180 19s. 4d. was withdrawn to help meet these very necessary expenses. The full financial position of the Section is detailed on the balance sheet of the Botanical Society. For the purpose of this report, therefore, the financial assets only of the Section as at 31 December 1960 are enumerated as follows: Placed on Fixed Deposit £616 1s. 10d.; Value of film and other equipment £383 16s. 0d.; Balance in Bank £219 18s. 0d., making a total of £1,219 15s. 10d.

NATURE CONSERVATION. In the absence of the Chairman, Professor Rycroft, Mrs. Hall, accompanied by Mr. Meyer, represented the Section at the Advisory Meeting for Nature Conservation held in Cape Town, September 6-11, when the recommendations of the Section relative to amending the Wild Flowers Protection Ordinance were discussed. Most of these recommendations were accepted by the meeting, which would in turn submit its findings to the Provincial Executive for confirmation and action. It is impossible in this report to detail all the proposals submitted by the Wild Flowers Protection Committee; however, in view of its long experience, careful thought is always given to any such proposals, all of which are directed towards the sensible and correct approach with regard to the application of the Ordinance.

WILD FLOWER SHOW, KIRSTENBOSCH, 24 and 25 SEPTEMBER. This Show, organized by the Section under the auspices of the Botanical Society, continues to prove of tremendous value in respect of our wild flowers, and

probably does more than anything else to foster the interest and appreciation of our flora. Exhibits in the 1960 Show were numerous and of a high quality, and very sincere thanks are extended to all those members who entered exhibits and so ensured its success. We were favoured by the presence of His Honour, The Administrator of the Cape Province. Mr. N. J. Malan, who opened the Show, and of Mrs. Malan. These distinguished guests showed extreme interest in the work of the Section and we were most pleased to welcome them.

WILD FLOWERS PROTECTION ORDINANCE CONTRAVENTIONS. The detailed and lengthy reports of our appointed inspector, Mr. H. D. W. Meyer, testify as always to the diligence, with which he carries out his duties, which are at times onerous, mostly on account of nurserymen and others not being as fully conversant with the Ordinance as they should be. However, despite setbacks and difficulties, Mr. Meyer continues his daily rounds of inspection, advising and assisting whenever necessary.

MEMBERS OF THE COMMITTEE 1960:

Miss M. E. Johns.	Mr. H. D. W. Meyer.
Mr. V. Karg.	Professor H. B. Rycroft.
Mr. C. L. Lighton.	Mr. A. J. A. Simpson.
Mr. I. S. Linley.	Mr. H. A. van Hoogstraten.
Mr. S. Macpherson.	

Professor Rycroft was re-elected Chairman at the first meeting of the Committee.

APPRECIATION. Sincere thanks are recorded to the Cape Provincial Administration and its officials for kind co-operation throughout the year, also to the South African Broadcasting Corporation and the Daily Press.

H. B. RYCROFT
Chairman

(Mrs.) W. N. HALL
Hon. Secretary/Treasurer

BALANCE SHEET AS AT 31 DECEMBER 1960

R. M. JOUBERT & CO.
Chartered Accountants (S.A.)
Auditors

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

INCOME AND EXPENDITURE ACCOUNT for the Twelve Months ended 31 DECEMBER 1960

	£	s.	d.	£	s.	d.		£	s.	d.	£	s.	d.
General Administration expenses ..				288	10	9	<i>Subscriptions:</i>						
Audit Fees 1960				36	15	0	Family Members	702	8	11			
Honorarium to Secretary-Treasurer ..				360	0	0	Ordinary Members	2,637	19	11			
Bank charges				25	14	2	Associate Members	432	18	6			
Stationery, Printing, Duplicating, etc..				205	13	5	Corporate Members	65	15	0			
<i>Journal No. 46:</i>													
Cost to date including printing, dispatching, etc.	459	15	7				Donations				3,839	2	4
Less amounts received from advertisements	134	1	6				Interest on Investments				334	4	0
											222	0	7
Depreciation—Addressograph				325	14	1							
Transfer to Reserve Fund				54	11	8							
Surplus for the year				220	14	11							
				2,877	12	11							
				<u>£4,395</u>	<u>6</u>	<u>11</u>					<u>£4,395</u>	<u>6</u>	<u>11</u>

AUDITORS' REPORT

We have to report that we have examined the Balance Sheet with the books and vouchers of the Society, and have obtained all the information and explanations we have required. We are satisfied that the securities are in existence and that the Society has kept proper books and accounts.

We are of opinion that such Balance Sheet is properly drawn up so as to exhibit a true and fair view of the state of the Society's affairs at the date thereof according to the best of our knowledge and the explanations given to us and as shown by the books of the Society.

CAPE TOWN

27th January, 1961

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PUBLICATIONS ON SALE AT KIRSTENBOSCH

The following may be obtained by application, enclosing payment, to The Hon. Secretary, Botanical Society, Kirstenbosch, Newlands, C.P., South Africa. Prices include postage.

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'The Genus *Muraltia*'; M. R. Levyns R3.50

'The Species of *Oxalis* occurring in the Cape Peninsula and how to distinguish them';

T. M. Salter 7½c

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'South African Proteaceae and their Cultivation'; H. F. Werner 7½c

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quarterly parts; per volume R3, per part R1.05. (To members of the Botanical

Society R2.50 and 85c respectively.) Back volumes at price of publication.

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

JOURNAL OF THE BOTANICAL SOCIETY: BACK NUMBERS

The following Parts are obtainable at the prices shown. The principal contents are mentioned below: each part also contains full-size Plates, News and Notes, Reports, etc.

Price to Members of the Botanical Society 25c; to non-Members 35c

Part	XXI.	Aloe Marlothii: Some Forms and Hybrids. Lawn Grasses on Trial at Kirstenbosch. How to form a Garden Library. South African Conifers for Garden Use. From New York to Kirstenbosch and Back.	G. W. Reynolds. J. W. Mathews. L. B. Creasey. J. W. Mathews. S. V. Coombs.
,,	XXII.	South African Succulents at Kew. An Old Cape Frontier. Our Wild Flowers and Their Protection.	Sir Arthur Hill. E. A. Walker. F. Guthrie.
,,	XXVII.	Weeds: The 'New' Cape Flora. Drug Plants.	R. S. Adamson. F. W. Thorns.
,,	XXVIII.	The Herbarium of the National Botanic Gardens, Kirstenbosch. Nature Study in the Forests at Kirstenbosch.	R. H. Compton. M. E. Johns.
,,	XXXI.	Cape Annuals for the Garden. A Plea for South African Trees.	F. W. Thorns. D. R. D'Ewes.
,,	XL.	Seaweeds. An Australian Plant Propagator looks to South Africa for new plants for Australian Gardens. Growing Proteaceae in the Summer-rainfall Area. Some South African Biennials and near-Biennials and their Cultivation. Some impressions and reflections of a Plant Collector.	W. E. Isaac. T. A. Browne. M. M. Vogts. H. F. Werner. T. P. Stokoe.
,,	XLIII.	Propagation and Cultivation of Heaths. Notes on some rare Stapelias from Namaqualand. The Cultivation of some Ericas in New Zealand.	H. F. Werner. H. Hall. W. R. Stevens.
,,	XLIV.	Birds of the National Botanic Gardens of South Africa. Gasteria—A Problem Genus of South African Succulent Plants.	G. J. Broekhuysen. E. A. C. L. E. Schelpe.

Botanical Society of South Africa

CALENDAR OF MEETINGS FOR 1961

- Saturday, 7th January, 3 p.m.*
The Lawn, Kirstenbosch. Special gathering for Visiting Members.
- Saturday, 28th January, 7 p.m.*
Braai vleis at Kirstenbosch. Welcome Home to Professor H. B. Rycroft. (Coffee only provided.)
- Tuesday, 28th March, 8.15 p.m.* Lecture Hall, Kirstenbosch.
Annual General Meeting, followed by Illustrated Talk on 'Paarl Mountain' by Mr. D. R. D'Ewes.
- Tuesday, 23rd May, 8.15 p.m.* Lecture Hall, Kirstenbosch.
'A Botanical Trip to Britain and the Continent.' Illustrated Talk by Professor H. B. Rycroft.
- Tuesday, 4th July, 8.15 p.m.* Lecture Hall, Kirstenbosch.
'Succulent Plants'. Their history and cultivation. Colour slides. By Mr. H. Hall.
- Saturday, 26th August, 3 p.m.*
Visit to Mrs. Thomas' Indigenous Bulb Nursery. Cars meet 2.45 p.m., 'Spottie', Main Road, Retreat.
- Saturday, 9th September, 3 p.m.*
Annual Visit to the Karoo Garden, Worcester.
- Saturday, 23rd September, 12 noon.*
Wild Flower Show. Lecture Hall, Kirstenbosch.
- Sunday, 24th September*
Continuation of **Wild Flower Show.**
- Saturday, 7th October, 3 p.m.*
'Visit to a Member's Garden.' The Hon. H. A. and Mrs. Fagan, 'Keurbos', Primrose Avenue, Wynberg. Cars meet Kirstenbosch Main Gate, 2.45 p.m.
- Saturday, 14th October, 11 a.m.*
Annual Gathering of Members. The Lawn, Kirstenbosch.
- Saturday, 18th November, 3 p.m.*
Visit to Harold Porter Botanic Reserve, Betty's Bay.
- 1962**
- Saturday, 6th January, 3 p.m.*
The Lawn, Kirstenbosch. Special Gathering for Visiting Members.

Members are cordially invited to bring their friends to the meetings. Please telephone Secretary re visits to Members' gardens.

Have Your Friends Joined the Society Yet? If Not, Why Not?

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

THE BOTANICAL SOCIETY OF SOUTH AFRICA

OBJECTS:

1. The promotion of the interests of the National Botanic Gardens of South Africa established under the Trustee of the National Botanic Gardens of South Africa.
2. The preservation of the native flora of South Africa. The Society therefore endeavours:
 - (a) To encourage the people of South Africa and other countries in the progress and development of the National Botanic Gardens of South Africa at Kirstenbosch, and any other Garden that may be established by the Trustees of the said National Botanic Gardens of South Africa.
 - (b) To augment the Government and other grants towards developing, improving and maintaining the National Botanic Gardens of South Africa at Kirstenbosch and any Garden referred to in the preceding subsection.
 - (c) To organize shows at which may be displayed the results of botanical experiments of cultural skill in improving the different varieties of South African flora.
 - (d) To enlighten and instruct on botanical subjects by means of meetings, lectures and conferences and by the distribution of literature.
 - (e) To promote the preservation of the native flora of South Africa, to encourage public interest in it, and to co-operate with the Public Authorities and others in the attainment of this object.

FOUNDED 10 JUNE 1913

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Associate Members enjoy all the privileges of Membership except that they do not vote at any of the Society's Meetings.

Honorary Members may be elected at a Meeting of the Society on the nomination of the Council.

All members have the privilege of sharing in the free distribution of surplus seeds from Kirstenbosch and Worcester, on application to the Director of the Gardens. The Journal of the Botanical Society, published annually, is sent free to every Member. The Journal of South African Botany can be purchased by Members at reduced rates.

Members who wish to support the Wild Flower Protection Section of the Society may give an annual subscription of 50c per annum in addition to the subscription for the class to which they belong. Those wishing to become Members of the Society are invited to communicate with the Hon. Secretary, Mrs. W. N. HALL, Botanical Society of South Africa, Kirstenbosch, Newlands, C.P.

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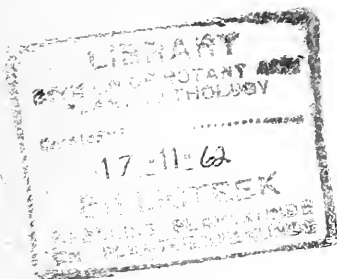
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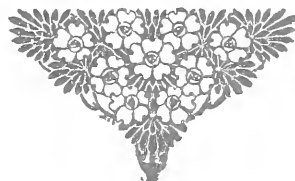
BOTANICAL SOCIETY OF SOUTH AFRICA



Edited by H. B. RYCROFT, M.Sc.,
B.Sc.(For.), Ph.D., F.L.S., Director of National
Botanic Gardens, Harold Pearson Professor of
Botany in the University of Cape Town

Part XLVIII

1962



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Disa uniflora Berg., 'Pride of Table Mountain', grown at Kirstenbosch.

PHOTO: PROF. H. B. RYCROFT



The Journal of the Botanical Society of South Africa

EDITED BY H. B. RYCROFT

PART XLVIII

1962

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Frontispiece: *Disa uniflora* (Photo: Professor H. B. Rycroft)
South African Epiphytic Orchids (Photos: Dr. E. A. C. L. E. Schelpe)



News and Notes

JUBILEE PLANS—1963

THE Gardens at Kirstenbosch and the Botanical Society of South Africa were both founded in 1913. Next year, therefore, they will both be 50 years of age, and it is fitting that this important occasion should be marked in an appropriate manner.

Plans are proceeding very well and a very full programme of celebrations is being arranged for next year.

The State President has graciously agreed to be our Patron-in-Chief and the Patrons are the Minister of Education, Arts and Science, the Minister of Information, the Administrators of the Cape of Good Hope, Transvaal, Natal, Orange Free State and South West Africa and the Mayor of the City of Cape Town. The main arrangements are in the capable hands of our Jubilee Director, Colonel I. P. S. Terblanche.

The first major event will be a wreath-laying ceremony on the grave of Professor H. H. W. Pearson on 28 January, the ninety-third anniversary of the date of his birth. He was appointed Professor of Botany in 1903 at the old South African College (now the University of Cape Town) and was responsible for the founding of Kirstenbosch ten years later.

In February there will be a Garden Party at Kirstenbosch at which our Patron-in-Chief, the State President, will be the guest of honour.

An International Stamp Exhibition will be held in Cape Town from 14 to 21 March and on the 19th to 20th of the same month an international flower show is to be staged in the City Hall and the Old Drill Hall, Cape Town. Exhibits have been promised from many parts of the world.

At various times during the year a series of exhibitions and competitions will be held, but the highlight of the celebrations will be in September and October to coincide with the spring season in South Africa. During this time Kirstenbosch and the Botanical Society will be receiving a limited number of distinguished botanists and horticulturists from many countries as their specially invited guests.

A very large spring and wild flower show is being planned for 19 to 21 September. Many of the districts famed for their unique and beautiful wild flowers will participate in this Show to make it the largest and most comprehensive ever staged in South Africa. No doubt it will receive world-wide attention.

At the end of September our visitors will be taken on a botanical tour of a large part of the country, including the Karoo, Garden Route, Knysna Forests, Addo Elephant Park, Natal Coast, Hluhluwe Game Reserve, Kruger National Park, Pretoria and Johannesburg. This tour will be preceded by local excursions in the western Cape.

* * *

JUBILEE FUNDS

To arrange all the celebrations which are being planned to extend throughout the year funds are urgently required. We hope to commemorate the occasion by the establishing of something lasting and worth while. The Jubilee Council therefore wishes to provide a Botanical Research Laboratory and a Fellowship for botanical study on the South African flora and to bring about much-needed amenities at Kirstenbosch and its associated Gardens.

A very serious and urgent appeal is thus made to each and every member of the Botanical Society of South Africa for contributions which will help us see the realization of our plans. Our Jubilee Brochure has been circulated to all members.

* * *

OVERSEAS INTEREST IN SOUTH AFRICAN WILD FLOWERS

Requests for exhibits of wild flowers grown at Kirstenbosch are received from all parts of the world and are being made more and more frequently from one year to the next. It is certain that these exhibits of South African flowers have contributed and will continue to contribute in no small measure towards international good-will and a better understanding of South Africa.

Unfortunately the success of these exhibits at international flower shows starts in motion a chain of events. Kirstenbosch becomes better and better known, the sponsors of the shows where the flowers are exhibited request larger and more frequent consignments of flowers, organizers of other shows ask for exhibits, interested spectators write to inquire whether plants and seeds of cut flowers are obtainable from Kirstenbosch, what treatment they require, when they will flower, etc.

All this, of course, increases the drain on the resources of the Gardens. The selection, cutting, transport, cleaning, fumigation, packing and dispatch of the flowers take considerable time, but while we are able to do these things we are happy to know that our

flowers are admired and appreciated in all parts of the world. To enable us to continue and increase this service, which is in the interests of South Africa, extended cultivation, more labour and additional staff will be required.

* * *

HONOUR FOR DIRECTOR OF KEW GARDENS

Kew and Kirstenbosch have long been associated, and all at Kirstenbosch were naturally very pleased to know that the British New Year Honours List included an announcement that a knighthood had been conferred on Dr. George Taylor, F.R.S.E., F.L.S., V.M.H., Director of the Royal Botanic Gardens, Kew.

Sir George last visited South Africa in 1928 and we are expecting that he will attend our Jubilee celebrations at Kirstenbosch next year.

* * *

DR. L. BOLUS

We offer our sincere congratulations to Dr. L. Bolus on reaching her 85th birthday which she celebrated on 31 July. For many, many years Mrs. Bolus has been one of South Africa's most prominent botanists and she is looked upon as the world authority on the Mesembryanthemums and related succulent plants. She still contributes her regular notes on new species and taxonomic puzzles to the *Journal of South African Botany* which is published quarterly by Kirstenbosch.

Mrs. Bolus is a frequent visitor to Kirstenbosch where she discusses with Mr. Harry Hall the succulents he has collected and grown. Similarly Mr. Frank Stayner and Mr. Littlewood of the Karoo Garden, Worcester, look to Mrs. Bolus for her comments. In fact, here we have a very efficient and co-operative little team of botanist and horticulturists, all of them succulent enthusiasts.

* * *

GIFT OF FLOWER PAINTINGS

The last artistic task executed by the late Mrs. Cynthia Ussher, whose demise we mourned in June, was an exquisite painting of fifty species of South African wild flowers which framed a blank space. This work, which was originally intended as a design for a poster for Kirstenbosch Jubilee year, was presented to the Gardens by Mrs. Ussher. As the beauty of the painting could not possibly be reproduced (as originally intended) to do it full justice, Mrs. Ussher gladly agreed to the suggestion of the Jubilee Council that the botanists who would be visiting Kirstenbosch during the Jubilee year be invited

to autograph the painting in the space provided, after which it would be framed and kept as a memento of the first fifty years of the Gardens history.

Mrs. Ussher was recently awarded the Grenville medal in London for a collection of water-colours of *Gladiolus* species. Her daughter, Mrs. A. Ashton, has now generously donated this collection to Kirstenbosch as an expression of appreciation and regard which her mother had long felt for the Gardens.

* * *

WILD FLOWER SHOW SILVER TROPHY

We are greatly indebted to Mrs. Ann Lidderdale for the presentation this year of a handsome silver trophy to be known as the Henry Lidderdale Trophy in memory of her husband. This award will be competed for in this year's show in the Decorative Section and will be presented for the best exhibit by an amateur. This is our seventh wild flower show and will be officially opened on Saturday 22 September at 12 noon by Dr. J. P. Duminy, Principal and Vice-Chancellor of the University of Cape Town. Dr. Duminy is also a member of the Board of Trustees of the National Botanic Gardens of South Africa.

* * *

SMUTS MEMORIAL FELLOWSHIPS

Many will remember that some years ago funds were collected to mark the 80th birthday of Field-Marshal J. C. Smuts the great South African statesman, philosopher and botanist, by building a cottage for him at Kirstenbosch, a place which he loved so much. Unfortunately he died before reaching his four score years and the subscriptions were invested to form a fund the interest of which is being used for the Smuts Memorial Fellowship. This Fellowship is awarded to graduates in botany for research.

For 1962 and 1963 the Fellowship has been awarded to Mr. Bertil Nordenstam of the Botanical Institute Lund, Southern Sweden. He is working on the taxonomy, nomenclature and distribution of Euryops, Othonna and related genera of the family Compositae.

* * *

BOOK REVIEWS

It is well known that South Africa has perhaps the richest and most beautiful natural flora in the world and much has been written about it, but almost exclusively with regard to the wild flowers of a restricted part of the country; moreover, our trees have hardly been

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

considered at all. For example, since Sim's *Forests and Forest Flora of the Cape Colony*, published nearly sixty years ago, very little attention has been paid to the trees, and, secondly, practically all the literature on wild flowers has been in connexion with the south-western Cape.

Two recent publications, however, have helped considerably to fill the gaps. They indicate that the Republic has very interesting woody species and that the beautiful wild flowers are not confined entirely to the Cape. I refer to *Trees of South Africa* by Eve Palmer with illustrations by Norah Pitman, and *Wild Flowers of the Transvaal* illustrated by Cythna Letty and with text by R. A. Dyer, Inez Verdoorn and L. E. Codd. Both are handsome volumes and well worth places on the shelves of anyone interested in the South African vegetation.

The first part of the 'Tree' book deals with the history of botanical exploration in South Africa, the protection of our woody species and their distribution, identification and cultivation. The second, and main, part contains notes and descriptions of no less than 175 species of the more common trees. It is excellently illustrated with 31 colour plates, 148 photographs and numerous line-drawings.

This is a book for the specialist but also very definitely for the layman who is interested in our trees and who wants to know more about them. The botanical names in a few instances are different from those we used to know but in accordance with the International Rules of Botanical Nomenclature they must be accepted. It will not be long before we know them as well as those used incorrectly in the past.

Like the book on the trees, that on the wild flowers of the Transvaal is incomplete in the sense that all the species are not included. This would be impossible in single, reasonably priced volumes. However, as many as 423 species belonging to 82 families and 282 genera are described and illustrated—most of the illustrations being in full colour.

A glance through the pages will immediately indicate that South Africa's beautiful wild flowers are not confined to the western Cape but that the Transvaal also has a very handsome share. Think, for example, of the Barberton Daisy which is now cultivated in many parts of the world, the Impala Lily, the Tree Wistaria and the magnificent Arum lilies—known botanically as *Zantedeschia*—in colours of bright yellow, mauve and almost red, all of which find their natural home in the Transvaal.

The colour plates, on facing pages, alternate with two pages of relevant text, keeping the illustrations and

descriptions close together. This arrangement is convenient, practical and pleasing.

This is a book, like the other, where one can be quite certain of technical and scientific accuracy on every page.

We are indeed grateful to the artists and authors of both publications for giving us books which are easy to read and which are most interesting and valuable additions to any library of whatever kind—botanical, horticultural or Africana.

* * *

DISCOVERING WILD FLOWERS IN SOUTHERN AFRICA—
contributed by Dr. A. O. D. Mogg

This further work of that remarkable pair, Ezra and Sima Eliovson, must commend itself to every lover of our rich native flora. Herein, through some superb colour photography, Ezra gives artistic expression to Sima's wise and expert selection of a gratifying range of subjects for portrayal. Sima has 'clinched' the presentation with a simple cameoed account of the plants, coupled with local names, Latin designation and family relationships.

The publisher, Howard B. Timmins, is to be congratulated for having at once seen not only that pictures of such quality required a special setting and format, but also that his lithographer should exert himself to his fullest to reproduce the colours as truly as possible. That the lithographer succeeded so well in most of the reproductions is an achievement in itself. His task was not easy. For instance, the picture Ezra gave him of *Iboza riparia* (p. 168) was not clear. The colour itself is difficult to reproduce—although he succeeded remarkably well with a similar colour in *Blue Gem* (p. 214). However, the printer, too, has his difficulties. Thus the excellent picture of *Kniphofia praecox* (p. 146) is less truly colour-reproduced in the text than it is on the dust cover.

Nevertheless, the book well deserves an honoured place on every nature-lover's bookshelf, and for several good reasons: (a) it is of general interest in that it stimulates the spirit of protection of our South African wild flowers; (b) it encourages the cultivation of such plants in one's garden by seed from Kirstenbosch; (c) it outlines trips, including times and places where our rich flora can be seen at the optimum period; and (d) the illustrations, for beginner and professional alike, are an excellent guide for discovering and recognizing these treasures for ourselves. For its lavish treatment it is very reasonably priced at R6.06.

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

FLORA OF SOUTHERN AFRICA

Up to the present the standard reference on the flora of South Africa is the *Flora Capensis*, the oldest volume of which was published more than a hundred years ago. This work, although it has served South African botany for a very long time, is now largely out of date. With this in mind the Division of Botany decided that a new flora is overdue and work has commenced on the 'Flora of Southern Africa'. We are happy to know that the first volume is to be published soon.

* * *

GROWING OF PROTEAS

In this issue Mrs. Marie Vogts has given us a very intimate insight into the work she is doing on the growth habits and requirements of our proteas. This article is based on a talk she gave to the Botanical Society of South Africa earlier this year when the Lecture Hall was filled to capacity. Many people were unable to gain admittance and were very disappointed at having to miss this interesting lecture.

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BOOYSEN COMMISSION

The National Botanic Gardens at Kirstenbosch, Worcester and elsewhere have made a substantial contribution to South African botany, horticulture and conservation of the natural flora but, as all members will realize, the extent of achievement is governed by the availability of funds, staff and facilities.

In 1961 the Government appointed a Commission under the chairmanship of Mr. C. Murray Booyesen (who now, we are glad to say, is a Trustee of Kirstenbosch) to inquire into the functions and needs of State-aided institutions in South Africa. The Commission met the Trustees in May last year and listened very sympathetically to our difficulties and requests. The report of the recommendations is being awaited with considerable eagerness and in anticipation that the Institution may look forward to greater prosperity during the second half-century.

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KIRSTENBOSCH TEA HOUSE

Mr. and Mrs. Fall continue to give excellent service at the Tea House which is steadily becoming more and

more popular. In fact it is possible that not a few of our visitors come to Kirstenbosch not so much to see the Gardens but to enjoy a tasty meal or a cup of tea and hot buttered scones.

The Tea House had become so popular that it was almost impossible to accommodate all the customers. The stoep has now been considerably enlarged and enclosed with glass and about seventy more people can be seated.

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NEW LAYOUT BELOW TEA HOUSE

Large beds bordered by natural stone are still being established in the vicinity of the Tea House and Lecture Hall. The Ericas (heaths) and other plants established in these beds are flourishing and are attracting considerable attention.

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NEW FORMAT FOR JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

Since the first issue of our Journal in 1915 the form has never changed. It is felt that the present format is somewhat antiquated and, therefore, commencing with our Jubilee issue next year, we intend having something different.

This information is given in advance particularly for the benefit of those members or libraries that have their copies bound together.

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OBITUARIES

We regret to announce the deaths of the following members since the publication of the last issue of this Journal:

Mr. E. W. McL. Thomas (aged 92 years), Member of Botanical Society Council 1936-43.

Mr. F. G. Connock, an Honorary Life Member of the Botanical Society of S.A.

Mrs. W. A. Rycroft, mother of Professor H. B. Rycroft.

Mrs. Bennie Hewat.

Mrs. Cynthia Ussher.

Mrs. Muttie Marloth (aged 94 years), wife of the late Dr. Rudolph Marloth, author of *Flora of South Africa*.

Ons Flora, Reservate en die Goue Jubileum van die Nasionale Botaniese Tuine

DEUR W. J. TIJMS

GELUKKIG word die mens meer bewus van die belangrikheid om bepaalde natuurgebiede van ondergang te red en te bewaar vir komende geslagte.

Suid-Afrika is bekend vir sy natuurskoon en die blomme van die Kaap is wêreldberoemd.

In die Nasionale Botaniese Tuin van Suid-Afrika te Kirstenbosch word plante van oor die hele Afrika ten-toongestel. Omdat daar egter nie vir al die soorte die regte natuurlike omgewing geskep of nagmaak kan word nie, het die Nasionale Botaniese Tuin gesoek na plekke waar die blomme in hul natuurlike groeiplek beskerm, gekweek en bewonder kan word.

Die Karootuin by Worcester is een van die tuine wat onder die bekwame leiding staan van die kurator, mnr. Stayner. Die tuin wat dwarsdeur die jaar vir die publiek oop is is veral in die voorjaar, wanneer vygies blom, besonder kleurvol. Verder is daar 'n terrein in die Kaapse Vlakte, 'n reservaat in Darling en die Harold Porter Botaniese Reservaat in Bettysbaai. Bettysbaai lê ongeveer 30 myl van die Strand. Tussen Gordonsbaai en Hangklip is die kuspud van besondere skoonheid. Die reservaat self lê aan die hange van die Kogelbaai-berge wat tot aan die see strek. Twee klowe, Disa- en Luipaardskloof, waarin baie inheemse houtsoorte voorkom, soos geelhout, rooieels, assegaai en andere, vorm die begrensing.

In die eersgenoemde kloof kan 'n mens in Januarie/Februarie die mooiste rooi disas sien. Die reservaat wat oor die tweehonderd morge groot is verteenwoordig die flora van die Winterreënvalstreek. Professor Rycroft, die direkteur van die Nasionale Botaniese Tuine van Suid-Afrika, beweer dat ons hier per vierkante jaart die grootste konsentrasie plantesoorte ter wêreld kan raakloop. Daar is plante wat nêrens anders ter wêreld groei nie, byvoorbeeld die *Orothamnus Zeyheri* (moerasroos) wat sy tuiste het in die misgordel.

Die voortbestaan van hierdie groep word ernstig bedreig. Naas die groot verskeidenheid van Ericas en Proteas is daar talle ander interessante plante soos die *Witsenia Maura* (Bokbokiri), *Nivinea Stokoei*, *Chlarodrophila capensis* e.a. Harold Porter het 'n groot liefde vir hierdie veld gehad. Sy jeugideaal het waarheid geword toe professor Rycroft sy natuurtuin wat Porter „Shangri-la” genoem het, amptelik geopen het. Met sy dood in 1958 het Harold Porter Shangri-la nagelaat aan die volk

deur dit oor te dra aan Kirstenbosch, wat dit nou beheer. Die skenker se as is uitgestrooi aan die voet van Luipaardskloof wat uitkyk oor die reservaat en die oseaan wat nooit rus nie. In een rots wat die plek aandui is sy laaste wens geskryf naamlik „Shangri-la live for ever”. Porter se botaniese reservaat is deur ander gevolg. Munisipaliteite soos Hermanus, Ceres en andere het met die advies van die moedertuin „Kirstenbosch” hulle eie reservate aangelê. Ook op plase wen die idee veld deurdat 'n deel nie bebou word nie om sodoende die inheemse flora daar te bewaar.

Die regering is gewys op die belangrike flora in die Kogelbaai-distrik, wat aan die Porter-reservaat grens, en onlangs is dit tot 'n nasionale monument verklaar. Mev. Vogts, verbonde aan die departement van plantkunde in Pretoria, het in Bettysbaai kom woon om in die gebied belangrike navorsings te doen, veral in verband met die *Proteaceae*.

Die flora *capensis* moes 'n groot indruk op ons voorvaders gemaak het. Selfs nog voor die koms van Jan van Riebeeck het ontdekkers en versamelaars plante na Europa geneem. In 1605 het daar reeds 'n publikasie van Clusius verskyn waarin *Exoticorum libri decem*, *Protea neriifolia* beskryf word. Professor Boerhave, verbonde aan die Universiteit van Leiden, Holland, het die eerste sistematiese beskrywing van die Protea's gedoen in 1720.

Name van groot plantkundiges is nou verbonde aan die Suid-Afrikaanse flora. Om enkele te noem: Linnaeus, Thunberg (hy word beskou as die vader van ons flora), Paul Herman, Mason en baie ander.

KIRSTENBOSCH-JUBILEUM

In 1963 vier die Nasionale Botaniese Tuine van Suid-Afrika sy Goue Jubileum. 'n Aantal vooraanstaande plant- en tuinboukundiges van ander lande is uitgenooi, as spesiale gaste, om aan die feesvierings in September/Okttober 1963 deel te neem. Een van die hoogtepunte van hul besoek sal 'n toer deur die Republiek wees wat talle gebiede van botaniese belang sal insluit. 'n Internasionale blommeskou in Maart en 'n veldblommeskou, waarin omliggende distrikte meewerk, word in September in die vooruitsig gestel. Verdere feesvierings sluit in 'n tuinfees, verskeie uitstallings, kompetisies, e.d.m., waar ook ruim voorsiening vir die jeug gemaak word.

The Cultivation of the Proteaceae

By MARIE M. VOGTS

Based on a lecture given to the Botanical Society of South Africa on 27 March 1962

FOR me to speak on the cultivation of the Proteaceae does seem somewhat rash. Kirstenbosch has been the inspiration for all of us who have ever attempted to cultivate the Proteaceae, and heights in their cultivation have been reached by many members of the Botanical Society. Kirstenbosch has preserved by cultivation some species which would certainly have been lost. Kirstenbosch has brought the growing protea-plant within reach of the public, who might otherwise never have seen it. Inevitably Kirstenbosch must have acquired a vast knowledge of the cultivation of the Proteaceae.

We individuals may cultivate proteas for many different reasons. We also may have the impulse to preserve the beauties of indigenous flora by cultivating it in our gardens or we may simply want a beautiful garden or we may be interested in the commercial side by providing for these gardens; or we may have a desire to find out why the Proteaceae as part of the Cape flora reacts in cultivation somewhat differently from other known garden plants, or we may carry on research on the cultivation for no other reason than that rare motive of acquiring knowledge for the sake of knowledge. Whatever the conscious or unconscious motive, we meet on common ground—we cultivate the proteas.

Since this talk is not to a horticultural society, which would rightly expect me to give a few hints or short cuts on the cultivation of the Proteaceae, but to the Botanical Society of South Africa I feel at liberty to present my own approach to the subject.

The essential purpose of that part of the work on the cultivation which I am doing, is to sort out and classify the factors influencing the Proteaceae growing in their natural habitat and to determine through experiments in cultivation which of these factors are indeed vital to the very existence of these plants. This you will say at once is a too ambitious if not impossible task, but as with any research we aim at the stars and by the wayside we pick up many bits of valuable information.

The factors are numerous. For instance we observe in the natural habitat winter rain, sandy soil, proteas more often growing on well-drained slopes rather than in marshy places—but just how vital are these obvious factors? One of the methods of determining the importance of any factor is to cultivate the plants outside their

natural habitat. Let me give you an example: we notice that protea seed in general rarely germinate after summer rain in their natural environment but only after the winter rains have really set in and the soil is thoroughly soaked. It appears now that the reason for this is not the lower winter temperature in the first place nor the greater amount of moisture but the fact that the constant washing of the seed on well-drained soil leaches away that very substance—call it an inhibitor—which prevents the seed from germinating after the first moistening and that the seed will only germinate after every trace of it has been leached out. In the summer-rainfall area it is possible to obtain seed which has had comparatively no rain while still in the heads or while being shed. This seed, it appears, will not germinate as a result of being soaked in a cup or if sown in a bed with a covering of leaf-mould mulch to retain the water, because it is not the amount of moisture which is needed, it is the constant washing out of inhibiting substances, and only after watering and watering and watering will the water promote germination—the seed will then come up like pumpkin pips!

What substance this inhibitor really is I cannot as yet say. I have given 2,000 *Leucospermum reflexum* seed to the plant physiologist of the Botany Department of the Stellenbosch University, who will try to isolate the substance, but the fact that it has not yet been identified does not prevent us from using this theory as too many observations point this way. I also gave 1,000 *L. reflexum* seed from the same source, i.e. collected in my Pretoria garden, collected after a dry season, and thus with the minimum amount of moisture during their ripening period, to Mr. du Preez of Modderkloof in the Paardeberg before I went to Europe last year. He did not know my generosity had an ulterior motive! A few weeks ago I saw the results—lovely plants, 50 per cent germination as one would have expected—but when he expressed his surprise that they took six months to germinate I was on the other hand quite pleased because theoretically it is hardly possible to wash out whatever it is that prevents the seed from germinating in a shorter time.

Had these experiments been carried out solely in the natural habitat it would have been far more complicated to reach any conclusions—the climate here may smooth

out mistakes which would be fatal elsewhere. However, once we have determined the importance of a factor, the knowledge can be applied and retested in the natural habitat to great advantage.

For this reason I am now engaged on a co-operative project with twelve botanical institutes attached to universities overseas, while twelve other botanic gardens are doing some testing. Not only may the strange and different conditions reveal vital requirements but the effect of the heavy, cold, polluted air at Kew, the long period of low illumination in Finland, the intense cold with bright light of mountainous Switzerland, the cool humidity of the islands of Lake Maggiore can be established. The idea is that all findings are to be sent to me at Betty's Bay, where the control experiments are being conducted.

This may be beside the point, but I am sure it would be of interest to mention that I found a readiness and eagerness to participate in this project. We can understand this when we remember that in at least one important classification of the world distribution of plants only six plant kingdoms are mentioned and one of these is our Cape Mediterranean flora—the Fynbos—in area the smallest of all, indeed very small compared to the rest of South Africa, which is part of the African kingdom and linked to sub-kingdoms from Burma to Hawaii. As a matter of fact I got the impression from the scientists I met in Europe that the idea of using plants on which comparatively little physiological research has been done provides an impetus for research and that some thought had already been given to the using of the Cape flora. It gave me some satisfaction that in this case the initiative came from South Africa, since the proteas belong to us. I have great hopes that the project will contribute to our knowledge of the behaviour of the Proteaceae.

To come back to the factors influencing their cultivation, we know that whatever nutrients plants take from the soil, these substances are in solution. In what concentration and from what solution the plant can best utilize them depends on the plant itself. Few plants are as sensitive to the concentration of the available nutrient material in the soil solution as the Proteaceae.

We can therefore not discuss what proteas need or what we can provide to make them grow better without discussing the importance of water. I think I can safely say that 90 per cent of all cultivated proteas in South Africa which die, die of a lack of water. Many Proteaceae, especially the *Leucospermums* or pincushions, have very marked periods of rest. True, during the

resting period they need very little water and as their resting period in general coincides with the driest season in the winter-rainfall area a farmer in this part of the world may well consider planting *Leucospermum nultans*, *L. tottum* or *L. catherinae* and others where he cannot irrigate during the month of February because, perhaps, the level of his dam is too low. But the fact that proteas need little water during their resting period gives the false impression that they need little water at all times. This resting period varies so much with different species, even within some species such as *Protea cynaroides*, that it is too risky to leave the plants for, say, longer than a week without watering them. In any case you cannot go wrong and you can hardly overwater, provided your soil is well-drained.

The 'well-drained' is necessary for we cannot ignore the possibility that during growing and flowering the roots of the proteas produce some toxic substance detrimental to their own existence. This then would be the reason why they need water and at the same time why they must get rid of whatever has accumulated around them. Just as protea seed needs more than ten times the amount of watering than for instance heath, which can happily germinate standing in a pan of water, so do the growing plants need a great deal of constant watering for their existence.

In their natural habitat the well-drained soil is, then, a vital factor. Only those proteas less sensitive to the concentration of soil solutions can grow on heavier soils. We find that *P. neriifolia* and *P. mundii*, for instance, are not half as particular as *P. cynaroides*. And I would venture to say at this stage of my work that this difference in sensitivity to concentration of soil water is an important reason, although not the sole one, for the distribution of many of the Proteaceae species in a limited area. We get communities with *Leucospermum conocarpum* dominant, then *P. neriifolia* dominant, then *P. cordata* dominant and so on, and everywhere where there is a particularly well-drained yet not dry spot there flourishes the *P. cynaroides*. This protea has different forms—we find summer-flowering *cynaroides*, winter, spring and autumn-flowering, but always where it is possible for water to wash its habitat clean, even to the extent of submerging the whole plant once a year. I have seen beautiful *cynaroides* growing on a small sandy elevation in a kloof, where the red disas were flowering not two yards lower in the tailwater. I have seen magnificent *cynaroides* grow a few feet from the *Orothamnus* or marsh rose, which incidentally was not growing in a marsh but on a well-drained slope with lots and lots of moisture.

In cultivation then we have to provide the running-off or running-away of water. I find that in general the top-surface drainage for these plants the most essential and to provide a top-soil of a third river-sand, a third garden-soil and a third acid-litter, such as blackwattle or oak or peat-moss (I am not very fond of pine-needles myself) is beneficial where soils are inclined to be heavy. The plants can also be mulched with this mixture, for one of the troubles in cultivation is that they have very superficial feeding roots and these may become exposed with watering, a condition which must be avoided. Mulching with leaf-mould tends to hold too much water and is dangerous for both toxic effect and fungus growth.

I have now stressed the importance of draining the water, so lavishly applied, off the plants. In cultivation, where we have not the help of known or unknown biotic factors of the natural habitat, we find that this water may also take away important nutrients. Because the proteas are so sensitive to the balance in the soil (rather to the concentration of nutrient cations in the liquid phase), it is sometimes safer to let them linger on on a starvation diet than to let them die a quick death from overfeeding, but little harm can be done if fertilizer is given in homoeopathic doses.

Investigations are being carried out on this aspect. In the meantime if you are too worried about your proteas looking underfed you may safely try some rock phosphate or a minute quantity of ammonium sulphate or a pinch of potash magnesite.

The pH of the soil should best be kept low. When I talk about the pH or the acidity of soil I only generalize, but in a short talk one is compelled to. Even though I am aware of *P. obtusifolia* growing in the Bredasdorp district in a soil with pH over 8 (8.3 to be exact), I still think it is safer to have a pH of lower than 6, especially here in our sandy soils with low cation absorption where we cannot rely on the brake of buffer solutions or colloids lowering the pH of the liquid phase of the soil.

My own opinion is, however, that we shall not be able to solve the needs of the proteas or understand their ability to utilize what is in poor soil before we have acquired more knowledge of the role played by soil micro-organisms; it may be due to the demands of these that the acid soil is to be recommended. I have reason to believe that soil microbes play a very important part in the welfare of the Proteaceae; I have even got suspicions of the presence of mycorrhiza, but at this stage there is nothing tangible which would be of assistance to cultivators.

When classifying climatic conditions so that garden

conditions may be adapted or changed to fall within the scope of tolerance of these plants, I must first mention wind. Our Proteaceae on the whole are not only able to withstand wind but definitely cannot grow without a certain amount of movement of air. You may take this for granted, but just how vital it is was very well illustrated to me when I was walking in the really very beautiful Botanic Garden at Munich in Germany with Dr. Friederich and Professor Merxmüller, who were discussing their so far almost futile efforts to cultivate the Proteaceae, that we came upon a small lovely silver tree growing, to the astonishment of these learned gentlemen, through the broken glass of one of the frames at the back of the nurseries. These plants must have fresh air at all times, even while small protea plants during their first and second years are being protected against too strong gales.

Small plants should also be protected from frost. As soon as some wood has formed, i.e. after the second year, most species can withstand 10° of frost or even more but not for a long period. Some shelter should be provided but certainly not a hot-house. Frost is, however, not a threat in this part of the world—the threat here to small plants is often the intense heat and light in February. True, the heat here is a dry heat and far less harmful than the humid heat in the summer-rainfall area, yet small protea plants need some shade and moisture just as they do have among the bushes in their natural habitat. For this reason their regeneration from seed after a veld-fire on the bare slopes is slow, and only on those rare aspects where climatic conditions are most favourable will the young seedlings mature. I am busy at the moment doing a survey on how many of the young protea seedlings coming up after fire really mature.

I should mention fire as a factor. Because many young seedlings come up after a veld-fire, one is inclined to think that fire stimulates germination; there are many theories in this regard. You may have heard talks by Dr. Stewart from California who is investigating the possible stimulus given by carbon or ash. It is true after fire protea seed in the veld is liberated and more room is made for the young plants, but I am very doubtful whether burning or excessive heat is of any value to the Proteaceae. There is an old home remedy for pale and anaemic looking flowerheads—apply woodash! I have tried it myself with remarkable results.

But what is beneficial and what is vital are two different things. We have come to look upon the cool mist on the mountain tops as a vital requirement for

those rare and aristocratic members of the Protea family such as *Orothamnus* and *Mimetes argentea*. I feel that if we could know more about their needs we would be able to provide the necessary requirements and bring them down to flower on our level. The mist we can hardly provide, but I hold the theory that the mist is beneficial but not vital. So is the English climate to the delicate skin of the English girl, but we in South Africa manage with face-creams and sun-hats to hold our own!

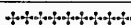
Before I close I should like to mention that in the cultivation of the proteas one cannot lose sight of the fact that proteas, like all other plants, are subject to disease. In Pretoria many of my plants had eelworm. I had this eelworm identified by the Nematological Section of the Division of Entomology and we found it to be the same as the menace tobacco farmers have to meet. Yet infested proteas looked healthy and strong. This disease may probably affect the stamina of young plants, but

there is the possibility that with proteas, as with some grasses and weeds, it may not be so fatal. Here in the natural home of the proteas, however, we simply have to take notice of the enemies; the Entomological Section of the Western Province Fruit Research Station has already identified some twenty. The battle is more than half won when once the life history of the destroyer is known.

I do not want to end with a pep talk, but there are a number of young members of the Botanical Society and I should like to say to them: keep a record of your observations and keep a record of your attempts to cultivate the proteas. In years to come these may well be more than pointers, they may be valuable information.

Acknowledgement is made to the Department of Agricultural Technical Services for permission to publish this article in the *Journal of the Botanical Society of South Africa*.

Seed Distribution, 1963



SPECIAL NOTE

Your copy of the 1963 seed list is enclosed with this Journal, together with an addressed envelope to the Director, National Botanic Gardens. AS FROM 1963 SEEDS WILL ONLY BE DISTRIBUTED FROM JANUARY TO APRIL EACH YEAR. NEW MEMBERS JOINING MAY-SEPTEMBER INCLUSIVE MAY, HOWEVER, APPLY FOR SEEDS DURING THE MONTH OF SEPTEMBER. It is sincerely regretted that seed requests received after these dates cannot be dealt with until the next distribution period. Your kind attention to this would greatly help the staff at Kirstenbosch and would eliminate a great deal of correspondence which, owing to the number of requests received, is quite impossible to deal with. Please, therefore, do not forget to send in your request for seeds at the correct time.

Lawns

By J. A. MARAIS

IN the modern home-garden there is nothing that produces such a pleasing effect and which sets off the flower-beds and shrubberies as an expanse of well-kept, deep-green lawn. Unluckily, however, due to several factors which may have been overlooked, many proud house-owners do not attain this ideal.

The problems of growing a good lawn in a country as vast as ours, with its varying climates—winter rainfall in the Cape and summer rainfall in the Transvaal—make general recommendations and treatments to apply to the whole of South Africa quite impracticable. The types of grasses vary and it is well known that a grass flourishing in the Lowveld areas would be useless in the Highveld or at the Cape. A fine *Cynodon* from the Free State, for instance, may prosper near the moisture-laden air of the coast for a year or two and quite suddenly become prone to diseases. From practical experience the writer has always advised gardeners not to be over-enthusiastic about some beautiful grass they have seen growing a few hundred miles away, but to search for good examples of lawns nearer their homes and then to ascertain their origin.

In many areas of this country an indigenous grass occurs from which many finer varieties have been derived. This is called *Cynodon dactylon*, commonly known as 'couch' or 'kweek' grass. It is a hard-wearing kind that will grow for years without developing troublesome diseases such as 'Brown Patch' or 'Dollar Spot' and is resistant to the 'thinning' action by depredations of ants and termites.

PREPARATION OF THE GROUND

Healthy lawns require good drainage, essential wherever there is the tendency for the ground to become waterlogged during heavy rains, particularly in clay soils. The site should be well-composted and ploughed or dug thoroughly at least twice, and sufficient time should elapse between these two operations for any weeds to germinate. This will greatly minimize the endless labour of weeding the rows of newly planted grass later on, and before it has become established. The preparation of the ground should be completed well in advance of August and September when planting is carried out. Deep cultivation is not necessary since most grasses are surface rooting, the top nine inches

being quite sufficient. The addition of a good, coarse river sand is advisable in clay soils. The site must be shaped, contoured or levelled to conform to the ultimate picture in the mind's eye of the owner before planting commences and an application of 5-13-5 fertilizer at the rate of two ounces per square yard should be thoroughly worked into the soil. Planting distances between the rows should be from six to nine inches for the finer grasses and twelve to fourteen inches for the vigorous types such as 'Buffalo'. Being shallow rooting however, 'Buffalo' must not be planted too deep.

When the new grass runners show signs of growth an added stimulant of 13-7-0 or 10-10-0 fertilizer, at the rate of two ounces per square yard should be applied and subsequently every six months, preferably in early spring and late autumn. This should be well watered in unless applied in showery weather. Ideal, healthy growth of a good green colour is thus encouraged; furthermore, such regular fertilizing greatly minimizes the growth of weeds. Regular mowing before weed plants flower and produce their seeds is a further aid in keeping them in check.

CARE AND MAINTENANCE

The old belief that a good lawn is obtained, and continues to remain a good lawn only by the annual application of a top-dressing of the entire area by compost and sandy soil is, in the opinion of the writer, wrong and results in a waste of money and labour. Furthermore, if the top-dressing is not clean it can prove a serious nuisance by the subsequent growth of introduced weeds such as 'Sorrel' or 'Nut-Grass'. The compost applied as top-dressing cannot penetrate into the soil and much of the nourishment is lost by the action of wind, rain and sun. Established turf gradually builds up its own organic matter from the natural decay of its own worn-out root system and from the grass clippings allowed to remain on the surface occasionally, especially from the last two mowings before winter. A top-dressing is recommended only when sunken patches or holes have formed, these being filled in and levelled with a clean, healthy mixture.

About every second year, if the lawn has become matted and shows signs of deterioration, a good spiking with a spike roller or tine fork when the soil is moist

will be most beneficial. The fertilizer application can be made after such operation. It may also become necessary to rake out an old matted lawn to remove dead growth and accumulations of grass clippings so thick as to impede healthy root growth. A healthy, vigorous grass, by constant care and feeding, will greatly help to minimize weed growth. Frequently, a single application of weed-killer at the beginning will suffice to keep weeds down.

TYPES OF GRASS

To assist potential lawn planters in selecting suitable grass the following list includes a few of the most commonly used types.

Cynodon transvaalensis, commonly known as 'Florida', is yellow-green in colour and hardy, but is not too satisfactory in sandy soils. It is planted by stolons and rhizomes.

Cynodon magennisii, known as 'Magennis', is a fine grass

of a dark-green colour but where drought conditions are prevalent is less resistant to disease. Planted by stolons and rhizomes.

Cynodon dactylon, 'Hall's Selection', is a medium fine grass and very similar to the popular 'Royal Cape Cynodon' but is a slow grower.

A *Cynodon* known as 'Skaap Plaas Fine' is dark green and very fine. It is very popular where a fine lawn is preferred.

For coastal lawns and especially in the western Cape the most successful grass is *Stenotaphrum secundatum* commonly known as 'Kaap Kweek' or 'Buffels Kweek'. It has strong runners and is a surface grower, medium green in colour and slightly less coarse in foliage than 'Kikuyu'. It prefers a fairly moist soil and requires less mowing than most other grasses.

For lawns beneath shady trees the grass known as 'Swazi Grass', *Digitaria swazilandensis*, sometimes proves quite useful. This does not, however, form a dense mat.

SPECIAL NOTE TO MEMBERS RESIDENT OUTSIDE THE REPUBLIC OF SOUTH AFRICA

Members are kindly reminded that all subscriptions must be remitted in the equivalent South African currency, i.e. Rand/Cents. Please check with your bank or Post Office before remitting. The following is given as a guide:—

Corporate Membership	..	Rand 10.00	(£5.0.0)
Family .. .. .	..	„ 5.00	(£2.10.0)
Ordinary .. .. .	..	„ 3.00	(£1.10.0)

South African Epiphytic Orchids: II

By E. A. C. L. E. SCHELPE

INTRODUCTION

THE first part of this review of the epiphytic orchids of South Africa (Schelpe, 1961) dealt with thirteen recognized species having pseudobulbs. However, since its publication, another species of *Polystachya* from the eastern Transvaal, probably new but allied to the Rhodesian *P. zambeiaca* Rolfe has been recognized. In this second part it is proposed to deal with the genera in which no pseudobulbs are formed but in which the stem bears leaves in two ranks and continues growth from the apex (monopodial growth). In these plants the flower spikes arise in the axils of the leaves. Nearly all the South African species of this group have white or pale coloured flowers and are commonly referred to as 'angraecoid' orchids. The one exception is a member of the genus *Acampe* which has yellow flowers spotted with red-brown.

The angraecoid orchids were treated by Rolfe (1912) in the *Flora Capensis* under the three genera *Angraecum*, *Listrostachys* and *Mystacidium*. Schlechter (1918) proposed a new classification of these orchids on the basis of a wide knowledge of the group in continental Africa and the adjoining islands, but some South African authors seem to have ignored this important work.

In order to understand the classification of this group some knowledge of their floral morphology is necessary. A columnar structure (the column) in the centre of the flower bears the yellow pollen masses (pollinia) at its apex underneath a removable cap. These pollen masses are connected by one or two filamentous or flattened strips (stipes) to a single or two separate sticky glands. These stipes usually lie along a downward outgrowth of the column known as the rostellum. In the angraecoid orchids the lip is usually produced into a nectar-containing spur.

ACAMPE

The genus *Acampe* is predominantly an eastern Asiatic genus but one species, *A. pachyglotta* Reichb.f., occurs through tropical East Africa from Kenya southwards to the Transvaal lowveld and the eastern border of Swaziland. The short, dense spikes of $\frac{1}{2}$ inch yellow flowers marked with reddish-brown distinguish it easily from all the other South African monopodial orchids. Even when it is not in flower it can usually be recognized in the field by its leathery, 8-inch keeled leaves and its massive

seed pods $1\frac{1}{2}$ inches long borne on short, thick flower stalks.

MICROCOELIA

Microcoelia exilis Lindl. (formerly known as *Angraecum chiloschistae* Reichb.f.) is the only leafless epiphytic orchid in South Africa with copiously branched roots. A species of *Mystacidium* in this region is also leafless or deciduous but its roots are rarely or never branched.

M. exilis is a tropical orchid distributed through East Africa and Madagascar and has been reported from as far south as Durban. It has very small flowers, under $\frac{1}{16}$ inch across and, in Natal, seems to be confined to coastal bush along the Zululand coast and the St. Lucia estuary.

BOLUSIELLA

Among the smaller angraecoid orchids, the laterally flattened, iris-like leaves of *Bolusiella* are most distinctive. In *B. maudae* (Bol.) Schltr., first described as *Angraecum maudae* Bol., the erect spikes of dull white flowers arise from among the fan of inch-long leaves. This species has been found near Eshowe and in the Hluhluwe Game Reserve and is the only species of this genus known to occur in South Africa.

AERANGIS

Aerangis and the related genus *Rangaeris* are the two angraecoid genera in this region with flowers having spurs more than 3 inches long. *Aerangis mystacidii* (Reichb.f.) Schltr. (formerly known as *Angraecum mystacidii* Reichb.f.) is the only species of this widespread African genus so far recorded from South Africa. It grows in deep shade in forest and produces its slightly pink-tinged white flowers in late summer. The distribution range of this species extends through the warmer forests from the eastern Cape Province through Natal and along the Transvaal Drakensberg.

It is possible that the much larger *A. kotschyana* (Reichb.f.) Schltr. with foot-long leathery leaves and flowers with 6-inch spurs may occur in the more tropical areas of the Transvaal.

RANGAERIS

The only South African representative of this genus is *Rangaeris muscicola* (Reichb.f.) Summerh., a species wide-

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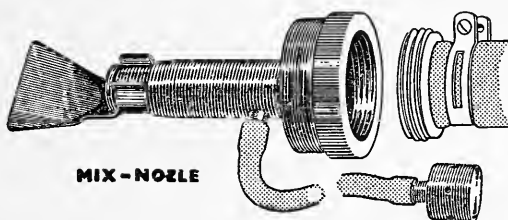
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spread in tropical Africa as far as Sierra Leone. It is easily distinguished by its triangular lip from *Aerangis mystacidii*, which has a narrowly oval lip, and by its deeply keeled leaves. The long-spurred white flowers produced in summer are heavily scented and turn yellow with age. It is only known in South Africa from three localities in Pondoland and southern Natal where it grows exclusively on sandstone outcrops not far from the coast. The southernmost locality known to the author is on the summit of the 'East Gate' at Port St. Johns.

CYRTORCHIS

Cyrtorchis arcuata (Lindl.) Schltr., formerly known as *Listrostachys arcuata* (Lindl.) Reichb.f., is probably the most frequently cultivated indigenous epiphytic orchid in the subtropical parts of South Africa. This species occurs sporadically in the Knysna forests and in forests through the eastern Cape Province and the Transkei and more frequently in the coastal forests of Natal and Zululand. The inch-wide, starry white flowers with attenuated floral segments are produced on rather short spurs in late summer.

The other species of this genus occurring in South Africa is *C. praetermissa* Summerh. which has a distribution range from Northern Rhodesia through Mozambique, Southern Rhodesia and the Transvaal lowveld to Zululand where the southernmost locality known is the Ngoya Forest. Although its flowers have the thick textured attenuated segments, relatively short spurs and long rostellum typical of the genus they are less than half the size of those of *C. arcuata*. *C. praetermissa* can also be distinguished in the field by its closely set, deeply keeled and often recurved leaves.

TRIDACTYLE

The genus *Tridactyle* is unique among the South African angraecoid orchids in having a distinctly three-lobed lip. The species produce their small, rather insignificant pale brown flowers in summer.

The most distinctive of the species of this genus occurring in South Africa is *T. tridentata* (Harv.) Schltr. with cylindrical leaves. This species was formerly known as *Angraecum tridentatum* Harv. and *A. bolusii* Rolfe. It may be found growing on lightly shaded sandstone outcrops or epiphytically in scrub northwards from the East London district along the coast and then farther inland in more tropical areas.

The other two species of this genus known to occur in South Africa do not have cylindrical leaves but more or less keeled, flattened leaves. The more common of these is

T. bicaudata (Lindl.) Schltr. which has a group of filamentous outgrowths extending from the side lobes of the lip. This species may be found as an epiphyte in forests, or as a lithophyte on exposed coastal sandstone outcrops in a more compact form. It has a distribution range extending from Knysna eastwards to the Transkei and then northwards as far as Swaziland.

T. tricuspis (Bol.) Schltr. has much more strongly keeled leaves and blunt side lobes to the lip. This species occurs at higher altitudes than *T. bicaudata* and appears to be confined to the temperate mountain forests of south-eastern Africa.

MYSTACIDIUM

The genus *Mystacidium* is the largest among the angraecoid orchids in South Africa with nine species. The plants are compact, the flowers have medium to long spurs and each pollen mass is attached by a separate stipe to a separate gland.

The most distinct of the South African species is the leafless or near-leafless *M. gracile* Harv. The creamy white flowers with inch-long spurs are produced in spring from short stems which are almost hidden among a mass of wiry roots. It occurs most frequently in the higher altitude forests in the Amatolas, the Natal Drakensberg and on the Natal highlands.

The other eight species can best be grouped into those with wide-mouthed spurs and crowded flower spikes and those with narrow-mouthed spurs and well-spaced flowers. The former group includes *M. caffrum* (Bol.) Schltr., *M. millarii* Bol. and *M. braybonae* Summerh., which all flower in summer. *M. braybonae*, which is so far only known from the Zoutpansberg where it was discovered in 1948, can be distinguished by its bluntly pointed lip. *M. caffrum* is a fairly frequent species in the escarpment forests of the Transkei and Natal which has a rounded or notched lip with an inflated spur and a green column. The largest of this group, *M. millarii*, has much larger leaves up to 4 inches long and has a rounded lip but with the spur not inflated; it is only known from three localities on the south-east coast of South Africa.

The group with narrow-mouthed spurs and well-spaced flowers can be further divided on the length of the spurs. *M. capense* (L.f.) Schltr. (formerly known as *M. filicorne* Lindl.) and *M. venosum* Harv. ex. Rolfe both have white flowers with spurs more than an inch long while the remaining subgroup have pale green or pale yellow flowers with spurs less than an inch long.

M. capense is an early summer flowering species which

is locally common in the drier areas of the eastern Cape Province and Natal and usually occurs as an epiphyte in *Acacia* savannah and even on arborescent *Euphorbias*. In contrast, *M. venosum* flowers in autumn and occupies more moist forest habitats in the eastern Cape Province, Natal and the eastern Transvaal.

M. flanaganii (Bol.) Bol., *M. pusillum* Harv. and *M. aliciae* Bol., the remaining three species are summer-flowering, small, forest epiphytes with insignificant flowers. The difficulty of finding these small plants even when in flower has resulted in very poor and sporadic collections. *M. aliciae* with inch-long leaves and spurs $\frac{3}{16}$ inch long is only known from a specimen collected by Miss Pegler near Kentani in February 1903. Specimens from isolated localities in the eastern Cape Province, Pondoland, Natal and the eastern Transvaal are referable to *M. flanaganii* or *M. pusillum*, species which seem to be best distinguished on the structure of the very minute rostellum. These three species are in need of revision, but it can easily be appreciated that the investigation of the fine structure of minute rostellum cannot be done adequately from dried material. More fresh or preserved flowers of these small species are urgently needed from the Komgha, Kentani and other districts. Fortunately, they are not difficult to flower if they are collected undisturbed on the twigs on which they are growing.

DIAPHANANTHE

As the generic name indicates, *Diaphanante* is a genus with characteristically semi-transparent flowers. The only species recorded for South Africa is the widespread tropical African *Diaphanante xanthopollinium* (Reichb.f.) Summerh. formerly known as *Mystacidium gerrardii* (Reichb.f.) Bol. and *Mystacidium peglerae* Bol. Schlechter placed this group of species in the genus *Rhipidoglossum* which Summerhayes recently decided was inseparable from *Diaphanante*.

The only South African species produces greenish semi-transparent flowers $\frac{1}{8}$ inch across, with strongly curved spurs $\frac{1}{8}$ inch long, in fairly dense spikes about as long as the leaves, in late summer. In the field it can be recognized by the narrow linear leaves usually set widely apart on an elongated stem. Most of the South African records of this species are from the coastal forests of the eastern Cape Province and Natal.

ANGRAECUM

Although the species of this genus exhibit a wide variation in the shape and size of the flowers, they all

have a deeply cleft rostellum and have the two pollinia attached to a common stipe and gland.

The most attractive of the South African species is *A. conchiferum* Lindl., which produces flowers with white orbicular lips about $\frac{3}{4}$ inch across from slender pendulous stems. It is characteristically a montane forest species growing only in deep shade in localities from the eastern Cape Province to Rhodesia.

A less attractive, but rare, East Tropical African species which has recently been discovered in the coastal belt of Zululand is *A. cultriforme* Summerh. This species also has slender pendulous stems but the leaves are mottled and somewhat sickle-shaped. The very pale brown flower has a straight inflated spur $\frac{1}{2}$ inch long extending behind the pointed lip.

The other two species of *Angraecum* in South Africa have very small flowers (about $\frac{1}{8}$ inch across) and occur in temperate forests from the eastern Cape Province northwards through Natal. *A. sacciferum* Lindl. is a summer-flowering species with each spike bearing one to four flowers which have short, curved and inflated spurs. *A. pusillum* Lindl. (of which vigorous forms were described as *A. burchellii* Reichb.f.) is another species which flowers in early spring and produces up to seventeen flowers with straight uninflated spurs on each spike. The leaves of *A. pusillum* are usually narrower and more erect than those of *A. sacciferum*.

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↑

Mystacidium venosum

from Iron Crown, Eastern Transvaal

Photo: D. Williams

(Nat. size)



↑

Rangaeris muscicola

from near Port Edward

(4 nat. size)



↓

Aerangis mystacidii

from New Agatha, Eastern Transvaal

Photo: D. Williams

($\frac{1}{2}$ nat. size)

Cyrtorchis arcuata

from the Pirie Forest, Eastern Cape Province

↓

Photo: A. Fricke

($\frac{1}{2}$ nat. size)



Namaqualand, A Botanical Wonderland

By H. HALL

To the people of South Africa and tourists from overseas, and in guide books, the word Namaqualand is generally synonymous with spectacular wild flowers. Though it is now seldom called Little Namaqualand this does remain a useful term in differentiating it from Great Namaqualand, which is a larger territory to the north.

For readers who are not familiar with the territory it can be very briefly stated that Little Namaqualand occupies the north-western portion of the Cape Province. In the north it is bordered by the Orange River, in the south roughly by the 31 degrees South latitude, in the east by the 19 degrees East longitude and in the west by the South Atlantic. The area, in round figures, is about 20,000 square miles. A great deal of the area is broken and mountainous, mainly in the interior and particularly in the north and east, much of this being about 3,000 ft. above sea-level and with higher mountain ranges up to about 5,000 ft. Along its northern boundary it is extremely arid, especially near the Orange River valley where the river flows between steep-sided, lonely and uncannily silent canyons which are practically devoid of plant life. It is along these lower reaches of South Africa's longest river where the highest shade temperatures in the Republic—up to 120 degrees F.—have been recorded. The most northern portion of the territory, and the most broken and mountainous, is known as the Richtersveld, now a Hottentot Reserve, some of which is still fairly inaccessible and botanically unexplored.

Westwards the country gradually descends to the coast with huge plains of deep red sand, the 'Sandveld', between the more scattered hills. In the south these plains are fairly well covered by low, perennial plant forms such as shrubby 'Mesembryanthemums' and *Euphorbia* scrub. In the north, however, the plains are more barren, windswept and desolate where the rainfall diminishes rapidly. The coastal strip is remarkable for its virtually rainless climate and its coolness caused by the cold Antarctic current with its attendant and very prevalent sea fogs that may penetrate from 5 to 10 miles inland and, from November to May, the strong sea winds that can reach almost gale force daily, normally subsiding to a stiff breeze as the daylight fades. This dry coastal strip commences far to the south of

Alexander Bay and continues northward for more than a thousand miles, along the entire length of South West Africa and into Angola, varying in width from 10 to 80 miles. This, the Namib Desert, or Skeleton Coast, is one of the most desolate regions on earth and has claimed many lives. To the mineralogist, of course, the Namaqualand coast is of great importance, owing to its store of high quality alluvial diamonds.

Namaqualand's southern boundary is generally regarded as somewhere near Vanrhynsdorp, a small village 200 miles north of Cape Town and about 50 miles from the Atlantic. Broadly speaking Namaqualand is about 50 miles wide in the south, widening to about 150 miles in the north and more or less 250 miles from north to south.

The mountains, especially the Khamiesberg range and those surrounding Springbok, the capital of Namaqualand, are of granite, a frequent and outstanding feature being the smooth, rounded, almost skull-like slopes of bare, brown rock. The cool (southern) sides of some of these are covered with mosses and lichens, supporting numerous dwarf succulents and miniature bulbs and shrubs. In many other regions they are covered with layers of dazzling white quartz gravel eminently suited to the very many types of dwarf succulents which grow in abundance, some of which show extreme adaptations to these peculiar conditions.

Numerous river beds meander between the hills and across the plains, but flowing water in them is seen after rain for very short periods of time, rapidly soaking into the sandy plains below. Some are known to flow underground as, for example, the Buffels River near Springbok. So plentiful is its subterranean supply that half a million gallons of water are pumped daily to the various copper-mines some 30 miles away. It has been stated that surface water is seen to flow in the Buffels River at intervals of seven to ten years only.

Namaqualand is blessed with abundant sunshine for most of the year and even the winter days can be quite warm, though light frosts are not unknown. The rainfall fluctuates widely over the territory. Around Springbok it is about 12 inches per annum and slightly higher in the Khamiesberg. The valleys receive less, and everywhere the rainfall diminishes as the land descends to the coast where, as at Alexander Bay, the yearly average

is 1 inch. As with the entire western Cape it is a winter-rainfall area. Unfortunately these low averages mean that some years have much less than these mean figures and at such times the country is abnormally dry. For during summer in any year one's impression is invariably that of a hot, dry, stony land. Droughts are thus all too frequent and often for several years in succession. Comparatively little ground, therefore, is arable. One sees, instead, hordes of sheep and goats trekking through the indigenous scrub of the hill slopes and valleys, nibbling at this or that bush and, oddly, always on the move, in sharp contrast with the grazing habits of such animals on the verdant pastures in other parts of the world. Their food plants, therefore, are in considerable variety, but, having been taught that *Euphorbia latex* was notoriously toxic to the mucous membranes, the writer was astonished to observe, in 1948, for the first time, a flock of goats browsing vigorously upon plants of *Euphorbia dregeana* in the Springbok area and, seemingly, thoroughly enjoying the juicy stems.

Largely semi-arid though it is, Namaqualand has a flora as rich and varied as any other part of the Province, some very highly specialized and with many endemics. To the botanist its succulent species are probably the most notable. To attempt to list a mere fraction of them would be interminable so a few general groups will be referred to for the purpose of emphasizing their abundance. The plant ecologist is invariably impressed by the prodigality of unrelated plant families seen growing socially in, at times, quite small areas; delicate, short-lived annuals among bulbs and shrubs and succulents. It is commonplace to find three or more unrelated plants growing in the shade of a small shrublet; for example, a ground orchid, a fern, a succulent and a few small bulbs.

The plant group broadly known as Mesembryanthemums consists of almost 3,000 different species, almost wholly South African, and of these Namaqualand certainly claims the lion's share. As is well known they have been split up into about a hundred sub-families, which is of great help to the taxonomist. Dominant plants of the shrubby vegetation may be *Ruschias* (there are several hundred different species) though they vary from very dwarf, fleshy clumps, e.g. *Ruschia dualis*, to 6 ft. bushes like *Ruschia frutescens*. In fact, the preponderant mauve hue that colours the veld, especially the Karoo and Bushmanland in spring, is due largely to *Ruschias*. Of the genus *Conophytum* with roughly 300 species at least two-thirds are endemic to Namaqualand. These are very dwarf plants with fleshy leaves and occur

in many areas, frequently in rocky ground, on mountain tops, on almost sheer rock faces, among mosses and lichens, or in the shade of shrubs. About eight species of *Lithops* are endemic here, usually confined to the white quartz gravel of hill-tops and quartz-strewn plains, places where most other vegetation is notably scanty. These, together with dwarf, white-leaved *Crassulas*, the silvery-white *Anacampseros* spp. and some other midgets of the plant world, are among the best known of the 'Mimiery Plants'. About a dozen species of *Aloe* occur in Namaqualand with the 'Kokerboom' (*Aloe dichotoma*) perhaps the most distinctive. It is a characteristic feature of the granite hills around Springbok, and in May and June its bright yellow flower spikes silhouetted against the blue sky form a never-to-be-forgotten picture. A near relative, *A. ramosissima*, more densely branched but with similar flowers, occurs in the Richtersveld in the north but is much more plentiful on the South West African side of the Orange River. Both species are slow growing and, with age, become massive and tree-like. Two endemic species are confined to the dry coastal areas, these being *A. arenicola* and *A. framesii*. The dainty dwarf *A. krapohlina* is more widespread, extending to the Loeriesfontein district in Bushmanland, but where it reaches the coast near Grootmist and Alexander Bay occasional hybrids occur with the two coastal species.

The *Euphorbia* family is well represented, and much of the dull green colour of the sandveld is due to the bushy *E. burmannii*, while the extremely widespread *E. mauritanica* usually adds its brighter green hue, or yellow when in flower. In southern Namaqualand two rather rare species inhabit the sandy areas. *E. schoenlandii* is usually unbranched, stout and thorny, about 3 ft. tall with its characteristic leaning to the north. The other, *E. fasciculata*, is more scarce and is shorter and more branched. This north-leaning habit is not uncommon among these types of plants, and the leaves of some succulents do this, a habit especially noticeable in drought. In the far north *E. virosa* inhabits the hot, stony hills in almost rainless conditions. Often such a plant is the only living thing to be seen. It forms a stout fleshy bush about 6 ft. tall and is heavily armed with thorns. Though living in such arid surroundings it is heavily charged with milky latex and the slightest damage to the skin of the plant will cause a thin jet of sap to escape. Since it has the reputation of having the most venomous sap it demands great care and respect. In contrast the dwarf *E. stapelioides* prefers the cool, windswept plains near Alexander Bay. This species has virtually gone

underground for protection from sun and wind for only the green tips of the stems are visible.

The *Stapelia* family is well represented in Namaqualand, many of them rare and seldom seen. The star-shaped flowers of *Stapelia*s are known for their unpleasant odour and by many are regarded as curious rather than beautiful, but those of *Stapelia pulvinata*, with their centres like a cushion of the softest purple down, are worthy of such a term. It is found only near the Khamiesberg.

A fair number of *Pelargoniums* (Geraniaceae) occur, some stout and fleshy shrubs, others with stout, tuberous roots and leaves only during the winter. Most have very attractive flowers. If the tuberous, deciduous species retained their leaves a little more conveniently they would be far more sought after as garden plants.

The Crassulaceae is well represented with scores of species of *Crassula* and slightly fewer *Cotyledons*. *Cotyledon paniculata*, the 'Botterboom', is a feature of the koppies and always flowers in summer after the green, fleshy leaves have been discarded. At such times it adds a little colour to the dry summer landscape with its flower stems and flowers suffused with crimson.

Near the southern limits of Namaqualand there is the territory named on maps as the Knersvlakte. It is a vast, undulating plain with some low, scattered koppies, with much of its surface covered by a layer of fine, white quartz. In area probably more than 100 square miles, it can appear sombre and uninteresting, a wasteland of waterless plain with the whitish patches serving to relieve the monotony of the relatively dull green of the low scrub, for there are no trees here. In bright sunlight the white quartz is dazzling to the eyes and, in mid-summer, with shade temperatures around the hundred mark, distinctly unpleasant. On these quartz fields there is probably the greatest concentration of dwarf succulents to be found on earth. All the silvery-skinned *Argyrodermas*, about fifty species, occur here, frequently with scores of plants to the square yard. A number of dwarf *Conophytums*, some seldom seen, are found nowhere else. *Conophytum pillansii* is buried flush with the surface and when in flower only the pink petals are visible. The glittering leaved *Monilarias* are here, their snowy white flowers adorning the plants in winter. The curious looking *Dactyloopsis digitata* is also endemic and has extremely watery leaves but produces its tiny flowers in summer. Many other dwarf types have deceptively large subterranean tissue, an ideal arrangement for survival through the long periods of drought and heat. There are miniature *Crassulas*, *Cotyledons*, succulent

dwarfs of the 'Daisy' tribe like *Othonna*, *Kleinia* and *Senecio*, Bulbines, *Lachenalias* and *Gladioli*. A miniature white-flowcred 'Chincherinchee' can occur in places to resemble, even against the whitish gravel, a light fall of snow. And when rains have been kind the ground cover can be transformed into a sea of yellow and orange shades from the short-lived annuals. The dull green shrublets, largely 'Mesembryanthemums', burst forth into shades of magenta, pink and white, and those fortunate enough to be travelling across the Knersvlakte from north to south on a warm afternoon can become quite enchanted by the colour of it all.

The sandveld areas have few of such dwarfs but spring brings forth brilliant colours here, too. Some of the normally dull green bushes become clumps of dazzling yellow and orange from various species of *Othonna*, *Castalis* and *Euryops*, with patches of brilliant cerise or snowy white *Carpobrotus* species, the 'Sour Figs', the largest flowers of all the 'Mesembryanthemums'. Even the limited rainfall of the coast performs wonders and at times the area looks enchanting when the yellow *Dideltas*, white *Osteospermums*, and shrubby *Othonnas* are in flower, and in late afternoon the pale yellow or white flowers open on the strange-looking *Conicosias* ('Mesembryanthemum') in the deep, loose sand. Here, too, may be seen some trailing types, species of *Cephalophyllum* with some of the showiest flowers in the entire 'Mesembryanthemum' world.

In the first paragraph reference was made to Namaqualand's 'Wild Flowers'. At comparatively, and regrettably, long intervals of time good winter rains occur over a longer time than normal, coupled with warm sunshine and the absence of hot, dry winds from Bushmanland. Namaqualand then sees a transformation that defies adequate description. The last season when all these factors combined to give Nature a chance to display her floral wealth to the full was, in the writer's opinion, in 1950. Since then there have been only scattered areas, some of which produced colourful spring flowers when much of the country was still dry and uninteresting. It is no exaggeration to state that in the spring of 1950 the whole of Namaqualand was a veritable floral Paradise and it extended as far north as Luderitz in South West Africa. And since the eastern boundary of Namaqualand is ill-defined it can be added that the floral wealth spread as far east as Pofadder, as well as over some of the great plains of Bushmanland. Between Springbok and Pofadder the vast plain of red sand, about 20 miles across, was transformed into a sea of vivid orange produced by *Venidium fastuosum* (to some

the true 'Namaqualand Daisy'). These Venidiums were sometimes waist high, in places mixed with paler shades of buff, cream and white 'daisies' of near related kinds.

The ground cover between the taller plants would contain the dainty blues of Felicias and Wahlenbergias, variously coloured Nemesis and deep blue *Heliophila*. The pale lemon, afternoon flowers of *Conicosia namaquensis* were almost eclipsed, for one season, by the vast, eye-dazzling sea of orange which dominated all else. The normally brown, dry, granite hills had also received their quota and appeared, from afar, as if molten orange and gold had been poured over them, filling the nooks and crannies between the boulders with orange and yellow (*Osteospermum* spp.). On some koppies these yellowish flowered plants would be quite dominant, undoubtedly better adapted to thinner soil than the more vigorous Venidiums in the deeper sands below. Though Venidiums and Arctotises are widespread there were areas to the westward, as at Spektakel and further south in Grootvlei at the foothills of the Khanicsberg, where the *Ursinia* spp. predominated in shades of orange and yellow. Here, indeed, was a veritable wonderland of colour ever changing as one moved from place to place. Sometimes the rich colours of *Arctotis acaulis* were preponderant, or the deeper orange-red Gazanias, perhaps mixed with rich magenta from *Pelargonium incrassatum*, blue *Anchusa capensis* and mauve *Senecio*. In patches near Grootvlei the mixture of species and their colours was simply bewildering for the soil was thick with dwarf plants of yellow *Cotula*, a rose-coloured *Dero-*

theanthus, lemon-yellow *Micropterum* spp. and Gorterias of several kinds. From horizon to horizon these sheets of colour extended, all so wonderfully free from the weeds of cultivation that become so troublesome among the annuals during winter growth at Kirstenbosch.

Large areas of these flowery fields are cultivated and those parts lying fallow for a year give the indigenous wild flowers a splendid chance to regenerate. Even where grain has been sown the same species compete in some measure and do add colour to the otherwise uniformly green of the young grain, much as does the red Poppy in European cornfields. Mention should also be made of the numerous bulbous types, *Ixias*, *Sparaxis*, *Titonia*s and *Moreas*. Only on the more rocky outcrops could the succulents add their quota of colour, and their shades of pink, rose and magenta were an almost pleasing contrast to the quite preponderant orange as one's eyes swept across to the horizon. So lavish, in fact, was the growth of these annual types in 1950 that to seek for certain species of succulents known to occur on the stony, lower levels of some hills the writer had to push apart, and peer down between, the jungle of annual growth to find them.

Displays of such proportions as mentioned above are seen all too infrequently, but it must not be forgotten that many seeds of these species must, and do, lie about on the soil, baked in the sun for several years on end, patiently waiting for the life-giving rain. At the time these notes are written Namaqualand appears to hold out a better promise for its wild flowers than it has done for a number of years.

THE BOTANICAL SOCIETY OF SOUTH AFRICA

ANNUAL REPORT FOR THE YEAR ENDED 31 DECEMBER 1961

The Council of the Botanical Society of South Africa takes pleasure in presenting the forty-eighth Annual Report of the Society for the year ended 31 December 1961.

MEETINGS OF COUNCIL. In accordance with the Constitution, the required number of meetings were held all of which were adequately attended.

MEMBERSHIP. A welcome was given to 430 new members. Unhappily this pleasing number was offset by resignations and deaths totalling 128, while a further 299 had to be struck off the roll owing to subscription arrears. Total membership now 3,434.

FINANCIAL. Full details of the financial position of the Society are given in the Balance Sheet appended hereto. Upon reflection the year has been financially very successful, although it is regretted that the grant to the Trustees of the National Botanic Gardens shows a decrease of R56 over the previous year. This is, in part, due to the inevitable increase in the running costs of the Society, also a drop in donations received, the latter totalling R154 against R668 in 1960. These two items are, however, offset in part by an increase of R237 in members' subscriptions, despite resignations. To summarize, the following amounts are enumerated: Income—Subscriptions R7,916, Donations R154, Interest on Investments R497, Total R8,568; Expenditure R2,868 leaving a balance of R5,700 which constitutes the grant to the Trustees. Investments amount to R6,117 on Fixed Deposit, and R7,569 at call, of which R6,694 is earning interest. These sums care for the grant of R5,700 to the Trustees and R7,331 now standing to the credit of the Life Members Fund.

BOTANICAL SOCIETY REPRESENTATIVES: BOARD OF TRUSTEES, NATIONAL BOTANICAL GARDENS. At the September meeting of the Council Mr. D. R. D'Ewes, Mr. Milton Clough and Mr. S. Macpherson were re-elected to represent the Society on this Board. The Hon. Mr. H. A. Fagan was unanimously elected to fill the vacancy caused by the resignation of Mr. J. S. Linley. All appointments are for a period of three years dating from 1 September 1961.

CONTROL OF ALIEN VEGETATION COMMITTEE. Ably guided by its Chairman, Mr. A. J. A. Simpson, this committee continues to function in full force. Although some of the organized 'hacks' are not as well attended as they might be, there is no doubt that the active work of the committee is stimulating administrative and public interest and action in the need to control the spread of alien vegetation. There were seven organized 'hacks' last year, and the acquisition of a power saw has helped considerably in speeding up the clearing of sites and the size of trees that can be tackled. The committee is shortly to publish a brochure which will be widely distributed to further its campaign for National Parks to be formed in the Cape Province.

KIRSTENBOSCH BROCHURE. The Council of the Society in collaboration with the Trustees and Staff of the National Botanic Gardens, fulfilled a long-felt want during the year by publishing an illustrated guide to Kirstenbosch; 5,000 copies were printed to retail at 15 cents a copy. The resultant sales are very encouraging.

'WILD FLOWERS OF THE CAPE OF GOOD HOPE.' There now remain only 3,003 copies of this work to be sold. Profits in respect thereof total R6,190, all of which has been transferred to the National Botanic Gardens over the years, R540 being transferred in 1961.

NATURE RESERVES. The Council has again been approached and has given guidance and support to any legitimate proposals relative to the protection of our flora and fauna and the subsequent establishment of nature reserves in the Republic. The Society is represented on the various bodies.

MEETINGS OF THE SOCIETY. Very encouraging numbers attended the functions arranged for 1961, which were as follows:

7 *January*. Special Gathering for Visiting Members on the Lawn, Kirstenbosch. Although for various reasons this meeting is not always as well attended by our distant members as we should like, those who are able to be present thoroughly enjoy meeting our local members, also the staff of Kirstenbosch who kindly give

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

their time in order that our visitors may become better acquainted with the Gardens.

28 *January*. Braaivlei, Kirstenbosch. This fixture, specially arranged to welcome home Professor Rycroft, was most successful despite very unfavourable weather conditions.

28 *March*. Lecture Hall, Kirstenbosch. Annual General Meeting, after which our President, Mr. D. R. D'Ewes, gave pleasure to a large audience by an illustrated talk on 'Paarl Mountain'.

23 *May*. Lecture Hall, Kirstenbosch. 'A Botanical Trip to Britain and the Continent' was the theme of a very well-received account of his overseas sojourn by Professor Rycroft.

4 *July*. Lecture Hall, Kirstenbosch. Mr. H. Hall, Senior Horticulturist at Kirstenbosch, interested an appreciative audience with a talk on 'Succulent Plants—Their History and Cultivation'.

26 *August*. Mrs. M. L. Thomas was our hostess when we visited her indigenous bulb nursery at Retreat, members being able to see for themselves how successfully our bulbs can be grown. Refreshments were also kindly provided by Mrs. Thomas.

9 *September*. Karoo Garden, Worcester. Our annual visit to this Garden served to show members not only the floral beauty therein, but also the general progress made at the Garden during the past year under the direction of Mr. F. Stayner, Curator. Councillor C. J. Krynauw, a member of the Society and newly elected Mayor of Worcester, addressed the gathering. Tea was served by Mrs. Stayner and lady helpers.

23 and 24 *September*. Lecture Hall, Kirstenbosch. Wild Flower Show. This is fully detailed in the report of the Wild Flowers Protection Committee.

7 *October*. Visit to a Member's Garden. We are indebted to the Hon. Mr. H. A. and Mrs. Fagan for their kindness in allowing members of the Society to view their lovely indigenous garden in Bishopscourt, Claremont. After strolling round, we were entertained to tea by Mrs. Fagan.

14 *October*. Annual Gathering of Members. Very inclement weather compelled this gathering to be held in the Lecture Hall. In accordance with custom, the

Director of Kirstenbosch, Professor H. B. Rycroft, gave a detailed account of the work done at Kirstenbosch and the Regional Gardens under the control of the Trustees, during the year.

18 *November*. A tour of the Harold Porter Botanic Reserve at Betty's Bay, under the guidance of Mr. W. Tijmens, Curator, was much enjoyed, although it was regretted that it was perhaps a little late in the season to see the reserve at its best. Several ladies resident in Betty's Bay kindly served afternoon tea to the members.

JOURNAL OF THE BOTANICAL SOCIETY, PART XLVII, 1961. Edited by Professor Rycroft, this was published in September.

OFFICE-BEARERS. As elected at the Annual General Meeting of the Society in March:

President: Mr. D. R. D'Ewes.

Vice-Presidents: Professor R. H. Compton, Mr. C. J. Sibbett, Professor H. B. Rycroft.

Council:

Dr. G. J. Brockhuysen	Dr. G. J. Lewis
Mr. M. Clough	Mr. C. L. Lighton
Dr. J. S. Griffiths	Mr. J. S. Linley
Mr. H. A. van Hoogstraten	Mr. S. Macpherson
Mr. L. J. Hill	Mr. W. J. Middelmann
Dr. W. P. U. Jackson	Miss E. L. Stephens
Miss M. E. Johns	Mr. A. J. A. Simpson
Capt. M. F. Stern	

Mr. Milton Clough and Mr. S. Macpherson were re-elected Chairman and Vice-Chairman respectively at the first meeting of Council.

APPRECIATION. On the conclusion of this report the Council of the Botanical Society tenders its most sincere thanks to everyone who has helped further the Society's work during the past year. Particular mention to the Cape Provincial Administration for the use of its rooms for meetings of the Council, also to the Daily Press and the South African Broadcasting Corporation for kindly and helpful co-operation.

MILTON CLOUGH
Chairman
(MRS.) W. N. HALL
Hon. Secretary/Treasurer

Wild Flowers Protection Section Committee

ANNUAL REPORT FOR THE YEAR ENDED 31 DECEMBER 1961

FINANCIAL. The Balance Sheet of the Section compares very favourably with recent years, although there is a drop of R23 in members' subscriptions, and a loss of R79 on the Wild Flower Show, details of which are enumerated later in this report. The Income of the Section for the year was: Subscriptions R764, Cape Provincial Grant R300, Interest on Investment R55, making a total of R1,119. Expenditure amounted to R997, leaving a balance of R122. This amount, plus the balance in hand of R2,439 brought forward from 1960, brings the total assets of the Section as at 31 December 1961 to R2,561. Of this, R1,287 is placed on Fixed Deposit. Value of film equipment R691. Cash on hand and in the Bank R583 after providing for R38 due to General Account.

OUDEBOSCH FARM, CALEDON DISTRICT. The Wild Flowers Protection Committee was largely instrumental in saving this farm, on which large numbers of indigenous flowers endemic to the area grow, from being acquired by the Department of Prisons for the purpose of building a Reformatory. Representations to the Hon. The Minister of Lands amongst others, resulted in the area reverting back to the Department of Forestry as part of its nature reserve.

WILD FLOWERS PROTECTION ORDINANCE: CONTRAVENTIONS. We are glad to report that with the introduction by the Cape Provincial Administration of more full-time Nature Conservation Officers, the sometimes onerous duty of tracking down offenders against the Ordinance is now being dealt with more successfully by these officers, who are better equipped, having transport provided. The Committee continues to work in full co-operation with the Administration to which it regularly submits its report.

WILD FLOWER SHOW 23 AND 24 SEPTEMBER. This annual show again proved its worth, the standard and

number of exhibits improving with the years. Owing to heavy overhead expenses mainly due to lack of room at Kirstenbosch on account of which tents and other equipment have to be hired, there is sometimes a financial loss on this Show; inclement weather also takes its toll on receipts. This year's Show recorded a debit of R79. It is felt, however, that this monetary loss is more than counterbalanced by the excellent propaganda received. Rear-Admiral H. H. Biermann, S.A.S. Naval Chief of Staff, honoured us by opening this year's Show, which was marred by heavy rain.

OFFICE-BEARERS. The Council of the Botanical Society at its meeting in June re-elected the following:

Miss M. E. Johns	Mr. S. Macpherson
Mr. C. L. Lighton	Professor H. B. Rycroft
Mr. J. S. Linley	Mr. A. J. A. Simpson

Mr. H. L. Silberbauer and Mrs. M. M. Vogts replacing Mr. H. A. van Hoogstraten and Mr. V. Karg, resigned.

Professor Rycroft was re-elected Chairman at the first meeting of the committee.

Mr. S. Macpherson was elected Vice-Chairman, a new office, but one deemed very necessary, should it not be possible for Professor Rycroft to attend all meetings.

THANKS. Sincere appreciation is expressed once again to the Cape Provincial Administration for its kindly co-operation, also to the Daily Press and the South African Broadcasting Corporation.

H. B. RYCROFT
Chairman

(MRS.) W. N. HALL
Hon. Secretary

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

INCOME AND EXPENDITURE ACCOUNT for the Twelve Months ended 31 December 1961

	R	R		R	R
General Administration expenses		679.35	Subscriptions		7,915.84
Audit Fees 1961		73.50	Family Members	1,560.03	
Honorarium to Secretary-Treasurer ..		720.00	Ordinary Members	5,225.98	
Bank charges		70.19	Associate Members	939.40	
Stationery, Printing, etc.		369.47	Corporate Members	190.43	
<i>Journal No. 47</i>		778.11	Donations		154.68
Cost to date including printing, dispatching, etc.			Interest on Investments		497.52
Less amounts received from advertisements	932.11				
	154.00				
Depreciation—Addressograph		30.00			
Depreciation—Adding Machine		9.00			
Transfer to Reserve Fund		138.64			
Surplus for the year		5,699.78			
		<u>R8,568.04</u>			<u>R8,568.04</u>

AUDITORS' REPORT

We have to report that we have examined the attached Balance Sheet as at 31/12/61 with the books and vouchers of the Society, and have obtained all the information and explanations we have required. We are satisfied that the securities are in existence and that the Society has kept proper books and accounts.

We are of opinion that such Balance Sheet is properly drawn up so as to exhibit a true and fair view of the state of the Society's affairs at the date thereof according to the best of our knowledge and the explanations given to us and as shown by the books of the Society.

CAPE TOWN
1 February 1962

R. M. JOUBERT & CO.
Chartered Accountants (S.A.) Auditors

PUBLICATIONS ON SALE AT KIRSTENBOSCH

The following may be obtained by application, enclosing payment, to The Hon. Secretary, Botanical Society, Kirstenbosch, Newlands, C.P., South Africa. Prices include postage.

'The Genus <i>Oxalis</i> in South Africa'; T. M. Salter. (355 pages, 10 plates, 73 text-figures.)	R3.50
'The Genus <i>Muraltia</i> '; M. R. Levyns	R3.50
'The Species of <i>Oxalis</i> occurring in the Cape Peninsula and how to distinguish them'; T. M. Salter	7½c
'General Hints on Raising Indigenous Plants from Seed'; H. F. Werner	7½c
'South African Proteaceae and their Cultivation'; H. F. Werner	7½c
'Progress in the Study of the Silver Tree Disease'; D. Olivier	7½c
'Pelargonium—A South African Contribution to World Gardens'; F. M. Leighton ..	7½c
'The Propagation of Succulents from Seeds and Cuttings'; H. Hall	7½c
'Growing Proteaceae in the Summer-rainfall Area'; M. M. Vogts	7½c
'Seaweeds'; W. E. Isaac	7½c
'Some South African Biennials and near-Biennials and their cultivation'; H. F. Werner	7½c
'Some South African Herbaceous Perennials and their Cultivation'; H. F. Werner ..	7½c
'Plant Names and their Origin'; M. R. Levyns	7½c
'Propagation and Cultivation of Proteas and Heaths'; H. F. Werner	7½c
'Suid-Afrikaanse Proteaceae en Hul Teelt'; H. F. Werner	7½c
'Plants of Land and Sea'; W. E. Isaac	7½c
'Growing Cape Bulbs in the Summer Rainfall Area'; Sima Eliovson	7½c
'Algemene Wenke oor die Kweek van Inheemse Plante van Saad'; H. F. Werner ..	7½c
'Notes on some rare Stapelias from Namaqualand'; H. Hall	7½c
'Birds of the National Botanic Gardens of South Africa'	10c
'Gasteria—A Problem Genus of South African Succulent Plants'	10c
'South African Epiphytic Orchids'; E. A. C. L. E. Schelpe	10c
Annual Reports of the National Botanic Gardens, 1913-61, each year	2½c
Reprints available of articles published in the 'Journal of South African Botany', on inquiry, each	5c
'The Journal of South African Botany'; Vols. I-XXVII 1935-61, each volume in four quarterly parts; per volume R3, per part R1.05. (To members of the Botanical Society R2.50 and 85c respectively.) Back volumes at price of publication.	

THE JOURNAL OF THE BOTANICAL SOCIETY OF SOUTH AFRICA

JOURNAL OF THE BOTANICAL SOCIETY: BACK NUMBERS

The following Parts are obtainable at the prices shown. The principal contents are mentioned below: each part also contains full-size Plates, News and Notes, Reports, etc.

Price to Members of the Botanical Society 25c; to non-Members 35c

Part	XXI.	Aloe Marlothii: Some Forms and Hybrids. Lawn Grasses on Trial at Kirstenbosch. How to form a Garden Library. South African Conifers for Garden Use. From New York to Kirstenbosch and Back.	G. W. Reynolds. J. W. Mathews. L. B. Creasey. J. W. Mathews. S. V. Coombs.
„	XXII.	South African Succulents at Kew. An Old Cape Frontier. Our Wild Flowers and Their Protection.	Sir Arthur Hill. E. A. Walker. F. Guthrie.
„	XXVIII.	The Herbarium of the National Botanic Gardens, Kirstenbosch. Nature Study in the Forests at Kirstenbosch.	R. H. Compton. M. E. Johns.
„	XXXI.	Cape Annuals for the Garden. A Plea for South African Trees.	F. W. Thorns. D. R. D'Ewes.
„	XLIV.	Birds of the National Botanic Gardens of South Africa. Gasteria—A Problem Genus of South African Succulent Plants.	G. J. Broekhuysen. E. A. C. L. E. Schelpe.
„	XLIV.	South African Epiphytic Orchids: I	E. A. C. L. E. Schelpe.

Botanical Society of South Africa

CALENDAR OF MEETINGS FOR 1962

Saturday, 27th January, 3 p.m.

The Lawn, Kirstenbosch. Special gathering of Visiting Members.

Saturday, 17th February, 7 p.m.

Braai vleis at Kirstenbosch. (Coffee only provided).

Tuesday, 27th March, 8.15 p.m. Lecture Hall, Kirstenbosch.

Annual General Meeting, followed by 'The Cultivation of the Proteaceae'. Talk with Colour Slides by Mrs. Marie M. Vogts.

Tuesday, 5th June, 8.15 p.m. Lecture Hall, Kirstenbosch.

'South African Orchids'. Illustrated Talk by Dr. E. A. C. L. E. Schelpe.

Tuesday, 24th July, 8.15 p.m. Lecture Hall, Kirstenbosch.

'Indigenous Flora in Cape Town—Its Preservation and Use'. Talk by Mr. Colin Gohl.

Tuesday, 21st August, 8.15 p.m. Lecture Hall, Kirstenbosch.

A Botanical Symposium.

Saturday, 8th September, 3 p.m.

Annual Visit to the Karoo Garden, Worcester.

Saturday, 22nd September, 12 noon

Wild Flower Show. Lecture Hall, Kirstenbosch.

Sunday, 23rd September,

Continuation of **Wild Flower Show.**

Saturday, 6th October, 3 p.m.

'Visit to a Member's Garden'. Mr. and Mrs. Peter Barlow, 'Rustenburg', Stellenbosch. Cars meet Stellenbosch Post Office, 2.45 p.m.

Saturday, 13th October, 11 a.m.

The Lawn, Kirstenbosch. Annual gathering of Members.

Saturday, 10th November, 3 p.m.

Demonstrations in the Nursery, Kirstenbosch.

1963

Saturday, 12th January, 3 p.m.

The Lawn, Kirstenbosch. Special gathering for Visiting Members.

Members are cordially invited to bring their friends to the meetings. Please telephone Secretary re visits to Members' gardens.

Have Your Friends Joined the Society Yet? If Not, Why Not?

THE BOTANICAL SOCIETY OF SOUTH AFRICA

OBJECTS:

1. The promotion of the interests of the National Botanic Gardens of South Africa established under the Trustee of the National Botanic Gardens of South Africa.
2. The preservation of the native flora of South Africa. The Society therefore endeavours:
 - (a) To encourage the people of South Africa and other countries in the progress and development of the National Botanic Gardens of South Africa at Kirstenbosch, and any other Garden that may be established by the Trustees of the said National Botanic Gardens of South Africa.
 - (b) To augment the Government and other grants towards developing, improving and maintaining the National Botanic Gardens of South Africa at Kirstenbosch and any Garden referred to in the preceding subsection.
 - (c) To organize shows at which may be displayed the results of botanical experiments of cultural skill in improving the different varieties of South African flora.
 - (d) To enlighten and instruct on botanical subjects by means of meetings, lectures and conferences and by the distribution of literature.
 - (e) To promote the preservation of the native flora of South Africa, to encourage public interest in it, and to co-operate with the Public Authorities and others in the attainment of this object.

FOUNDED 10 JUNE 1913

President: Mr. DUDLEY R. D'EWES

Vice-Presidents: Mr. C. J. SIBBETT; Professor R. H. COMPTON; Professor H. B. RYCROFT

Chairman of Council: Mr. MILTON CLOUGH

Hon. Secretary and Treasurer: Mrs. W. N. HALL

Council:

Dr. G. J. Broekhuysen
Mr. M. Clough
Dr. J. S. Griffiths
Mr. H. A. van Hoogstraten

Mr. L. J. Hill
Dr. W. P. U. Jackson
Miss M. E. Johns
Dr. G. J. Lewis

Mr. C. Lighton
Mr. J. S. Linley
Mr. S. Macpherson
Mr. W. J. Middelman

Miss E. L. Stephens
Capt. M. F. Stern
Mr. A. J. A. Simpson

Terms of Membership:

Benefactors, subscribing not less than R1,000 over a period of two years or less.

Patrons, subscribing not less than R200 in one payment.

Life Members, subscribing not less than R50 in one payment. (Not open to municipalities, societies, etc.)
(Life Membership is open to Family and Ordinary Members of twenty years standing for one payment of R20.)

Corporate Members, subscribing not less than R10 per annum.

Family Members, subscribing not less than R5 per annum.

Ordinary Members, subscribing not less than R3 per annum.

Associate Members, subscribing not less than R1 per annum and being resident in the Republic of South Africa, S.W.A. and Central African Federation only.

Associate Members enjoy all the privileges of Membership except that they do not vote at any of the Society's Meetings.

Honorary Members may be elected at a Meeting of the Society on the nomination of the Council.

All members have the privilege of sharing in the free distribution of surplus seeds from Kirstenbosch and Worcester, on application to the Director of the Gardens. The Journal of the Botanical Society, published annually, is sent free to every Member. The Journal of South African Botany can be purchased by Members at reduced rates.

Members who wish to support the Wild Flower Protection Section of the Society may give an annual subscription of 50c per annum in addition to the subscription for the class to which they belong. Those wishing to become Members of the Society are invited to communicate with the Hon. Secretary, Mrs. W. N. HALL, Botanical Society of South Africa, Kirstenbosch, Newlands, C.P.



1862



1962

A Century of Service

The year 1962 will mark a century of service by our Bank to the peoples of South Africa and to all sections of farming, trade, and industry that have made our Country the most prosperous in Africa. From the early pioneering days, with all their difficulties, to the challenging times in which we now live, it has been our constant aim to provide the Nation with an ever-improving service. To this end we have developed a widespread network of Branches throughout the Republic with extensive representation in other territories and agents in all parts of the world.

Our long banking experience in Southern Africa has given us great faith in the Country's continued economic progress as we believe that its untapped resources, both human and material, are considerable and form a sound basis on which to build for the future. In that future we intend to play an increasing part in the service of our Country.

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